

Table 1. Explanation of ecological codes used in the analyses. Lower case codes in parentheses are those assigned to taxa and used to calculate the group values (the codes in capitals). Indivs - individuals (based on MNI); No - number.

No taxa	S	Index of diversity of the P component	alphaP	Index of diversity of the RF component	alphaRF
Estimated number of indivs (MNI)	N	Standard error	SEalphaP	Standard error	SEalphaRF
Index of diversity ()	alpha	No heathland/moorland taxa (m)	SM	No synanthropic taxa (sf+st+ss)	SSA
Standard error of alpha	SE alpha	Percentage of M taxa	PSM	Percentage of synanthropic taxa	PSSA
No 'certain' outdoor taxa (oa)	SOA	No M indivs	NM	No synanthropic indivs	NSA
Percentage of 'certain' outdoor taxa	PSOA	Percentage of M indivs	PNM	Percentage of SA indivs	PNSA
No 'certain' outdoor indivs	NOA	Index of diversity of the M component	alphaM	Index of diversity of SA component	ALPHASA
Percentage of 'certain' outdoor indivs	PNOA	Standard error	SEalphaM	Standard error	SEALPHASA
No OA and probable outdoor taxa (oa+ob)	SOB	No wood-associated taxa (l)	SL	No facultatively synanthropic taxa	SSF
	PSOB	Percentage of L taxa	PSL	Percentage of SF taxa	PSSF
Percentage of OB taxa	NOB	No L indivs	NL	No SF indivs	NSF
No OB indivs	PNOB	Percentage of L indivs	PNL	Percentage of SF indivs	PNSF
Percentage OB indivs	alphaOB	Index of diversity of the L component	alphaL	Index of diversity of SF component	ALPHASF
Index of diversity of the OB component	SEalphaOB	Standard error	SEalphaL	Standard error	SEALPHASF
Standard error	SW	No decomposer taxa (rt + rd + rf)	SRT	No typical synanthropic taxa	SST
No aquatic taxa (w)	PSW	Percentage of RT taxa	PSRT	Percentage of ST taxa	PSST
Percentage of aquatic taxa	NW	No RT indivs	NRT	No ST indivs	NST
No aquatic indivs	PNW	Percentage of RT indivs	PNRT	Percentage of ST indivs	PNST
Percentage of W indivs	alphaW	Index of diversity of RT component	alphaRT	Index of diversity of ST component	ALPHAST
Index of diversity of the W component	SEalphaW	Standard error	SEalphaRT	Standard error	SEALPHAST
Standard error	SD	No 'dry' decomposer taxa (rd)	SRD	No strongly synanthropic taxa	SSS
No damp ground/waterside taxa (d)	PSD	Percentage of RD taxa	PSRD	Percentage of SS taxa	PSSS
Percentage D taxa	ND	No RD indivs	NRD	No SS indivs	NSS
No damp D indivs	PND	Percentage of RD indivs	PNRD	Percentage of SS indivs	PNSS
Percentage of D indivs	alphaD	Index of diversity of the RD component	alphaRD	Index of diversity of SS component	ALPHASS
Index of diversity of the D component	SEalphaD	Standard error	SEalphaRD	Standard error	SEALPHASS
Standard error	SP	No 'foul' decomposer taxa (rf)	SRF	No uncoded taxa (u)	SU
No strongly plant-associated taxa (p)	PSP	Percentage of RF taxa	PSRF	Percentage of uncoded indivs	PNU
Percentage of P taxa	NP	No RF indivs	NRF	No indivs of grain pests (g)	NG
No strongly P indivs	PNP	Percentage of RF indivs	PNRF	Percentage of indivs of grain pests	PNG
Percentage of P indivs					

Table 2. Numbers of insect assemblages examined from Roman deposits in Carlisle. For each site and feature type, the total number of subsamples analysed ('all') and the number giving twenty or more adult beetles and bugs of the groups used in calculating main statistics ('>19') is given.

	Site name	Site code		Roman lists	?type	layer	dump	pit	well	gully drain	floor	str	OGS	turves
Lanes 1	Old Grapes Lane A	OGLA	all	46	6	22	0	5	0	7	4	1	1	0
			N > 19	32	2	18	0	3	0	6	3	0	0	0
	Old Grapes Lane B	OGLB	all	8	0	4	0	0	3	0	0	1	0	0
			N > 19	7	0	4	0	0	2	0	0	1	0	0
	Old Grapes Lane (totals)	OGL	all	54	6	26	0	5	3	7	4	2	1	0
			N > 19	39	2	22	0	3	2	6	3	1	0	0
	Lewthwaite's Lane A	LELA	all	18	0	15	0	2	0	1	0	0	0	0
			N > 19	12	0	10	0	1	0	1	0	0	0	0
	Lanes 1 (totals)		all	72	6	41	0	7	3	8	4	2	1	0
			N > 19	51	2	32	0	4	2	7	3	1	0	0
Lanes 2	Keay's Lane A	KLA-A	all	26	0	0	0	21	0	5	0	0	0	0
			N > 19	16	0	0	0	14	0	2	0	0	0	0
	Keay's Lane B	KLA-B	all	23	4	11	0	4	0	4	0	1	2	0
			N > 19	7	1	4	0	2	0	0	0	0	0	0
	Keay's Lane C	KLA-C	all	12	0	1	0	3	0	8	0	0	0	0
			N > 19	11	0	0	0	3	0	8	0	0	0	0
	Keay's Lane D	KLA-D	all	17	0	3	0	6	0	8	0	0	0	0
			N > 19	12	0	0	0	5	0	5	0	0	0	0

	Site name	Site code		Roman lists	?type	layer	dump	pit	well	gully drain	floor	str	OGS	turves	
	Keay's Lane (totals)	KLA	all	81	4	15	0	34	0	25	0	1	2	0	
			N > 19	46	1	4	0	24	0	17	0	0	0	0	
	Law's Lane B	LAL-B	all	1	0	0	0	1	0	0	0	0	0	0	0
			N > 19	1	0	0	0	1	0	0	0	0	0	0	0
	Law's Lane C	LAL-C	all	6	0	0	0	4	0	1	0	0	0	0	0
			N > 19	6	0	0	0	5	0	1	0	0	0	0	0
	Law's Lane D	LAL-D	all	12	1	4	0	1	6	0	0	0	0	0	0
			N > 19	10	0	3	0	1	6	0	0	0	0	0	0
	Law's Lane (totals)	LAL	all	19	1	4	0	7	6	1	0	0	0	0	0
			N > 19	17	0	3	0	7	6	1	0	0	0	0	0
	Lanes 2 (totals)		all	100	5	16	0	28	6	21	0	1	2	0	0
			N > 19	63	1	7	0	31	6	18	0	0	0	0	0
	Castle Street	Castle Street	CST82	all	37	0	14	0	5	0	2	15	0	0	1
				N > 19	32	0	11	0	5	0	2	13	0	0	1
Annetwell Street	Annetwell Street	ANN 80-4	all	192	27	33	3	45	0	35	45	4	0	0	
			N > 19	112	18	20	1	33	0	23	15	2	0	0	

Table 3. Lanes 1 (Old Grapes Lane A and B, and Lewthwaite's Lane A): main statistics for site assemblage and breakdown by feature type. For explanation of ecological codes see Table 1. Str - 'structural', see text. Note that in this and other tables in the present report *Anotylus nitidulus* has been excluded from the 'D' category. Percentages are given to the nearest whole number: + = <0.5%>0.0%.

Feature	N		OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS	G	SS-G
All	4567	N	1245	194	49	487	46	87	1842	518	369	2091	676	376	1039	989	50
		%	27	4	1	11	1	2	40	11	8	45	15	8	22	21	1
pit	447	N	90	17	3	31	0	5	183	86	24	261	80	46	135	128	7
		%	20	4	1	7	0	1	41	19	5	58	18	10	30	29	1
layer	2703	N	846	131	40	303	41	42	1664	248	260	970	415	192	363	338	25
		%	31	5	1	11	2	2	61	9	10	36	15	7	13	12	1
drain gully	828	N	105	13	3	52	2	6	190	69	25	594	55	61	478	469	9
		%	13	2	+	6	+	1	23	8	3	72	7	7	58	57	1
floor	223	N	68	9	2	37	0	16	93	44	14	90	44	23	23	22	1
		%	30	4	1	17	0	7	42	20	6	40	20	10	10	10	0
str	119	N	19	2	0	10	0	7	76	23	9	60	32	21	7	5	2
		%	16	2	0	8	0	6	64	19	8	50	27	18	6	4	2
well	187	N	67	14	1	37	3	8	92	33	23	85	41	24	20	15	5
		%	36	7	1	20	2	4	49	18	12	45	22	13	11	8	3
OGS	11	N	3	0	0	1	0	0	7	4	2	6	1	4	1	1	0
		%	27	0	0	9	0	0	64	36	18	55	9	36	9	9	0

Table 4. Lanes 2 (Keay's Lane A-D and Law's Lane B-D): main statistics for site assemblage and breakdown by feature type. See notes to Table 3.

Feature	N		OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS	G	SS-G
All	8565	N	1705	282	97	583	25	90	3027	682	557	4925	942	935	3048	2959	89
		%	20	3	1	7	0	1	35	8	7	58	11	11	36	35	1
pit	3802	N	916	132	58	312	17	34	1574	262	315	1882	422	451	1009	984	25
		%	24	3	2	8	0	1	41	7	8	50	11	12	27	26	1
layer	971	N	153	35	3	52	0	11	319	85	75	605	121	83	401	394	7
		%	16	4	0	5	0	1	33	9	8	62	12	9	41	41	1
drain gully	1755	N	487	93	29	154	7	18	656	164	129	798	201	190	407	392	15
		%	28	5	2	9	0	1	37	9	7	45	11	11	23	22	1
floor	0	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
str	1	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
well	1922	N	126	18	6	62	1	27	435	162	29	1613	192	205	1216	1175	41
		%	7	1	0	3	0	1	23	8	2	84	10	11	63	61	2
OGS	0	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 5. Castle Street: main statistics for site assemblage and breakdown by feature type. See notes to Table 3.

Feature	N		OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS	G	SS-G
All	5124	N	643	101	27	240	2	55	1982	382	324	3136	603	542	1991	1956	35
		%	12	2	1	5	0	1	38	7	6	60	12	10	38	38	1
pit	339	N	53	8	1	25	0	3	133	28	24	190	49	33	108	104	4
		%	16	2	0	7	0	1	39	8	7	45	14	10	32	31	1
layer	1520	N	250	42	9	72	0	13	677	132	128	823	215	199	409	398	11
		%	16	3	1	5	0	1	45	9	8	54	14	13	27	26	1
drain gully	367	N	52	15	2	19	0	4	137	28	41	209	37	41	131	130	1
		%	14	4	1	5	0	1	37	8	11	57	10	11	36	35	0
floor	2551	N	208	27	13	85	2	31	885	181	113	1761	225	250	1286	1267	19
		%	8	1	1	3	0	1	35	7	4	69	9	10	50	50	1
str	0	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
well	0	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OGS	0	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
turves	347	N	80	9	2	39	0	4	150	13	18	153	77	19	57	57	0
		%	23	3	1	11	0	1	43	4	5	44	22	5	16	16	0

Table 6. Annetwell Street: main statistics for site assemblage and breakdown by feature type. See notes to Table 3.

Feature	N		OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS	G	SS-G
All	8972	N	1428	163	34	608	4	112	3975	1491	372	5220	1430	1458	2332	2196	136
		%	16	2	0	7	0	1	44	17	4	58	16	16	26	24	2
pit	2547	N	306	37	8	128	2	22	1025	368	66	1639	394	383	862	838	24
		%	12	1	0	5	0	1	40	14	3	64	15	15	34	33	1
layer	1719	N	336	42	8	128	1	26	838	341	86	933	281	318	334	296	38
		%	20	2	0	7	0	2	49	20	5	54	16	18	19	17	2
drain gully	1698	N	305	40	9	136	0	25	690	223	95	914	245	204	465	444	21
		%	18	2	1	8	0	1	41	13	6	54	14	12	27	26	1
floor	1309	N	204	16	5	97	0	16	595	256	46	782	231	229	322	300	22
		%	16	1	0	7	0	1	46	20	4	60	18	18	25	23	2
str	148	N	20	0	1	8	0	2	73	26	4	83	30	25	28	24	4
		%	14	0	1	5	0	1	49	18	3	56	20	17	19	16	3
well	0	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OGS	0	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dump	60	N	16	3	1	5	0	0	26	8	4	16	5	3	8	6	2
		%	27	5	2	8	0	0	43	13	7	27	8	5	13	10	3

Table 7. Lanes 1 (Old Grapes Lane A and B, and Lewthwaite's Lane A): main statistics for site assemblage and breakdown by feature type, after removal of grain pests. See notes to Table 3.

Feature	N-G		OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS-G
All	3578	N	1245	194	49	487	46	87	1842	518	369	1102	676	376	50
		%	34	5	1	13	1	2	51	14	10	30	19	10	1
pit	319	N	90	17	3	31	0	5	183	86	24	133	80	46	7
		%	28	5	1	10	0	2	57	27	8	42	25	14	2
layer	2365	N	849	131	40	303	41	42	1664	248	258	632	416	196	25
		%	36	6	2	13	2	2	70	10	11	27	18	8	1
drain gully	359	N	105	13	3	52	2	6	190	69	25	125	55	61	9
		%	29	4	1	14	1	2	53	19	7	35	15	17	3
floor	201	N	68	9	2	37	0	16	93	44	14	68	44	23	1
		%	34	4	1	18	0	8	46	22	7	34	22	11	0
str	114	N	19	2	0	10	0	7	76	23	9	55	32	21	2
		%	17	2	0	9	0	6	67	20	8	48	28	18	2
well	172	N	67	14	1	37	3	8	92	33	23	70	41	24	5
		%	39	8	1	22	2	5	53	19	13	41	24	14	3
OGS	10	N	3	0	0	1	0	0	7	4	2	5	1	4	0
		%	30	0	0	10	0	0	70	40	20	50	10	40	0

Table 8. Lanes 2 (Keay's Lane A-D and Law's Lane B-D): main statistics for site assemblage and breakdown by feature type, after removal of grain pests. See notes to Table 3.

Feature	N		OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS-G
All	5606	N	1705	282	97	583	25	90	3027	682	557	1966	942	935	89
		%	30	5	2	10	+	2	54	12	10	35	17	17	1
pit	2818	N	916	132	58	312	17	34	1574	262	315	898	422	451	25
		%	33	5	2	11	1	1	56	9	11	32	15	16	1
layer	577	N	153	35	3	52	0	11	319	85	75	211	121	83	7
		%	27	6	1	9	0	2	55	15	13	37	21	14	1
drain gully	1363	N	487	93	29	154	7	18	656	164	129	406	201	190	15
		%	36	7	2	11	1	1	37	12	9	30	15	14	1
floor	0	N	0	0	0	0	0	0	0	0	0	0	0	0	0
		%	0	0	0	0	0	0	0	0	0	0	0	0	0
str	1	N	0	0	0	0	0	0	0	0	0	0	0	0	0
		%	0	0	0	0	0	0	0	0	0	0	0	0	0
well	747	N	126	18	6	62	1	27	435	162	29	438	192	205	41
		%	17	2	1	8	+	4	58	22	4	59	26	27	5
OGS	0	N	0	0	0	0	0	0	0	0	0	0	0	0	0
		%	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 9. Castle Street: main statistics for site assemblage and breakdown by feature type, after removal of grain pests. See notes to Table 3.

Feature	N		OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS-G
All	3168	N	643	101	27	240	2	55	1982	382	324	1180	603	542	35
		%	20	3	1	8	+	2	63	12	10	37	19	17	1
pit	235	N	53	8	1	25	0	3	133	28	24	86	49	33	4
		%	23	3	+	11	0	1	57	12	10	37	21	14	2
layer	1122	N	250	42	9	72	0	13	677	132	128	425	215	199	11
		%	22	4	1	6	0	1	60	12	11	38	19	18	1
drain gully	237	N	52	15	2	19	0	4	137	20	41	79	37	41	1
		%	22	6	1	8	0	2	58	8	17	33	16	17	0
floor	1284	N	208	27	13	85	2	31	885	181	113	494	225	250	19
		%	16	2	1	7	0	2	69	14	9	38	18	19	1
str	0	N	0	0	0	0	0	0	0	0	0	0	0	0	0
		%	0	0	0	0	0	0	0	0	0	0	0	0	0
well	0	N	0	0	0	0	0	0	0	0	0	0	0	0	0
		%	0	0	0	0	0	0	0	0	0	0	0	0	0
OGS	0	N	0	0	0	0	0	0	0	0	0	0	0	0	0
		%	0	0	0	0	0	0	0	0	0	0	0	0	0
turves	290	N	80	9	2	39	0	4	150	13	18	96	77	19	0
		%	28	3	1	13	0	1	52	4	6	33	27	7	0

Table 10. Annetwell Street: main statistics for site assemblage and breakdown by feature type, after removal of grain pests. See notes to Table 3.

Feature	N		OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS-G
All	6776	N	1428	163	34	608	4	112	3975	1491	372	3024	1430	1458	136
		%	21	2	1	9	+	2	59	22	5	45	21	22	2
pit	1709	N	306	37	8	128	2	22	1025	368	66	801	394	383	24
		%	18	2	+	7	+	1	60	22	4	47	23	22	1
layer	1423	N	336	42	8	128	1	26	838	341	86	637	281	318	38
		%	24	3	1	9	+	2	59	24	6	45	20	22	3
drain gully	1254	N	305	40	9	136	0	25	690	223	95	470	245	204	21
		%	24	3	1	11	0	2	55	18	8	37	20	16	2
floor	1009	N	204	16	5	97	0	16	595	256	46	482	231	229	22
		%	20	2	+	10	0	2	59	25	5	48	23	23	2
str	124	N	20	0	1	8	0	2	73	26	4	59	30	25	4
		%	16	0	1	6	0	2	59	21	3	48	24	20	3
well	0	N	0	0	0	0	0	0	0	0	0	0	0	0	0
		%	0	0	0	0	0	0	0	0	0	0	0	0	0
OGS	0	N	0	0	0	0	0	0	0	0	0	0	0	0	0
		%	0	0	0	0	0	0	0	0	0	0	0	0	0
dump	54	N	16	3	1	5	0	0	26	8	4	10	5	3	2
		%	30	6	2	9	0	0	48	15	7	19	9	6	4

Table 11. Summary comparison of selected main statistics for the four sites, before and after removal of grain pests. See notes to Table 3.

Feature	N		OB	W	D	P	M	L	RT	RD	RF	SA/-G	SF	ST	SS/-G	G
All sites combined	27291	N	5021	740	207	1918	77	344	10826	3073	1622	15372	3651	3311	8410	8100
		%	18	3	1	7	+	1	40	11	6	56	13	12	31	30
-G	19191	N	5021	740	207	1918	77	344	10826	3073	1622	7272	3651	3311	310	
		%	26	4	1	10	+	2	56	16	8	38	19	17	2	
Lanes 1	4630	N	1245	194	49	487	46	87	1842	518	369	2091	676	376	1039	989
		%	27	4	1	11	1	2	40	11	8	45	15	8	22	21
-G	3641	N	1245	194	49	487	46	87	1842	518	369	1102	676	376	50	
		%	34	5	1	13	1	2	51	14	10	30	19	10	1	
Lanes 2	8565	N	1705	282	97	583	25	90	3027	682	557	4925	942	935	3048	2959
		%	20	3	1	7	+	1	35	8	7	58	11	11	36	35
-G	5606	N	1705	282	97	583	25	90	3027	682	557	1966	942	935	89	
		%	30	5	2	10	+	2	54	12	10	35	17	17	1	
CST	5124	N	643	101	27	240	2	55	1982	382	324	3136	603	542	1991	1956
		%	12	2	1	5	+	1	38	7	6	60	12	10	38	38
-G	3168	N	643	101	27	240	2	55	1982	382	324	1180	603	542	35	
		%	20	3	1	8	+	2	63	12	10	37	19	17	1	
ANN	8972	N	1428	163	34	608	4	112	3975	1491	372	5220	1430	1458	2332	2196
		%	16	2	+	7	+	1	44	17	4	58	16	16	26	24
-G	6776	N	1428	163	34	608	4	112	3975	1491	372	3024	1430	1458	136	
		%	21	2	1	9	+	2	59	22	5	45	21	22	2	

Table 12. Test for significance of variation between selected statistics for the four sites. Statistics after removal of grain pests.

		Total coded inds minus G	OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS-G
observed	Lanes 1	3578	1182	194	49	487	46	87	1842	518	369	1102	676	376	50
	Lanes 2	5605	1705	282	97	583	25	90	3027	682	557	1966	942	935	89
	CST	3168	643	101	27	240	2	55	1982	382	324	1180	603	542	35
	Ann	6776	1428	163	34	608	4	112	3975	1491	372	3024	1430	1458	136
totals		19127	4958	740	207	1918	77	344	10826	3073	1622	7272	3651	3311	310
proportion			0.259	0.039	0.011	0.100	0.004	0.018	0.566	0.161	0.085	0.380	0.191	0.173	0.016
predicted	Lanes 1		927	138	39	359	14	64	2025	575	303	1360	683	619	58
	Lanes 2		1453	217	61	562	23	101	3172	901	475	2131	1070	970	91
	CST		821	123	34	318	13	57	1793	509	269	1204	605	548	51
	Ann		1756	262	73	679	27	122	3835	1089	575	2576	1293	1173	110
sums minus categories:			OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS-G
observed	Lanes 1		2396	3384	3529	3091	3532	3491	1736	3060	3209	2476	2902	3202	3528
	Lanes 2		3900	5323	5508	5022	5580	5515	2578	4923	5048	3639	4663	4670	5516
	CST		2525	3067	3141	2928	3166	3113	1186	2786	2844	1988	2565	2626	3133
	Ann		5348	6613	6742	6168	6772	6664	2801	5285	6404	3752	5346	5318	6640
sums minus categories:			OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS-G
predicted	Lanes 1		2651	3440	3539	3219	3564	3514	1553	3003	3275	2218	2895	2959	3520
	Lanes 2		4152	5388	5544	5043	5582	5504	2433	4704	5130	3474	4535	4635	5514
	CST		2347	3045	3134	2850	3155	3111	1375	2659	2899	1964	2563	2620	3117
	Ann		5020	6514	6703	6097	6749	6654	2941	5687	6201	4200	5483	5603	6666
chi square category against sum rest			OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS-G
	Lanes 1		94.294	23.207	2.758	50.919	69.587	8.118	38.174	6.699	15.488	79.155	0.088	115.650	1.119
	Lanes 2		59.050	20.361	22.009	0.868	0.264	1.180	15.369	63.174	15.340	20.611	18.895	1.550	0.038
	CST		52.196	3.947	1.565	21.111	9.104	0.070	45.850	37.743	12.460	0.801	0.006	0.090	5.289
	Ann		82.906	39.013	21.327	8.357	19.945	0.813	11.732	177.165	78.064	125.581	17.826	83.764	6.343
Sign and significance (with 3 degrees of freedom)			(+)**	(+)**	(+)	(+)**	(+)**	(+)*	(-)**	(-)	(+)**	(-)**	(-)	(-)**	(-)
** = p < 0.01 (chi square > 11.34)			(+)**	(+)**	(+)**	(+)	(+)	(-)	(-)**	(-)**	(+)**	(-)**	(+)**	(-)	(-)
* + p < 0.05 (chi square > 7.81)			(-)**	(-)	(-)	(-)**	(-)*	(-)	(+)**	(-)**	(+)**	(-)	(-)	(-)	(-)
			(-)**	(-)**	(-)**	(-)*	(-)**	(=)	(+)**	(+)**	(-)**	(+)**	(+)**	(+)**	(+)

Table 13. Comparison of selected main statistics (after removal of grain pests) for 'layers' at the four sites. See notes to Table 3.

Feature	N		OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS	G	SS-G
Lanes 1	2703	N	849	131	40	303	41	42	1664	248	260	970	415	192	363	338	25
		%	31	5	1	11	2	2	61	9	10	36	15	7	13	12	1
-G	2365	N	849	131	40	303	41	42	1664	248	258	632	416	196			25
		%	36	6	2	13	2	2	70	10	11	27	18	8			1
Lanes 2	971	N	153	35	3	52	0	11	319	85	75	605	121	83	401	394	7
		%	16	4	+	5	0	1	33	9	8	62	12	9	41	41	1
-G	577	N	153	35	3	52	0	11	319	85	75	211	121	83	7		7
		%	27	6	1	9	0	2	55	15	13	37	21	14	1		1
Castle Street	1520	N	250	42	9	72	0	13	677	132	128	823	215	199	409	398	15
		%	16	3	1	5	0	1	45	9	8	54	14	13	27	26	1
-G	1122	N	250	42	9	72	0	13	677	132	128	425	215	199			11
		%	22	4	1	6	0	1	60	12	11	38	19	18			1
Annetwell Street	1719	N	336	42	8	128	1	26	838	341	86	933	281	318	334	296	38
		%	20	2	+	7	+	2	49	20	5	54	16	18	19	17	2
-G	1423	N	336	42	8	128	1	26	838	341	86	637	281	318			38
		%	24	3	1	9	+	2	59	24	6	45	20	22			3

Table 14. Test for significance of variation between statistics for layers at the four sites. Statistics after removal of grain pests.

		Total coded inds minus G	OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS-G
observed	Lanes 1	4847	849	131	40	303	41	42	1664	248	260	632	416	196	25
	Lanes 2	1155	153	35	3	52	0	11	319	85	75	211	121	83	7
	CST	2173	250	42	9	72	0	13	677	132	128	425	215	199	11
	Ann	3080	336	42	8	128	1	26	838	341	86	637	281	318	38
totals			1588	250	60	555	42	92	3498	806	549	1905	1033	796	81
proportion			0.1411	0.0222	0.0053	0.0493	0.0037	0.0082	0.3108	0.0716	0.0488	0.1693	0.0918	0.0707	0.0072
predicted	Lanes 1		684	108	26	239	18	40	1506	347	236	820	445	343	35
	Lanes 2		163	26	6	57	4	9	359	83	56	195	106	82	8
	CST		307	48	12	107	8	18	675	156	106	368	199	154	16
	Ann		435	68	16	152	11	25	957	221	150	521	283	218	22
sums minus categories:			OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS-G
observed	Lanes 1		3998	4716	4807	4544	4806	4805	3183	1529	1269	4215	4431	4651	4822
	Lanes 2		1002	1120	1152	1103	1155	1144	836	497	422	944	1034	1072	1148
	CST		1923	2131	2164	2101	2173	2160	1496	4048	4168	1748	1958	1974	2162
	Ann		2744	3038	3072	2952	3079	3054	2242	1933	1932	2443	2799	2762	3042
sums minus categories			OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS-G
predicted	Lanes 1		4163.1	4739.3	4821.2	4608.0	4828.9	4807.4	3340.6	4499.9	4610.6	4026.6	4402.1	4504.2	4812.1
	Lanes 2		992.0	1129.3	1148.8	1098.0	1150.7	1145.6	796.0	1072.3	1098.7	959.5	1049.0	1073.3	1146.7
	CST		1866.4	2124.7	2161.4	2065.8	2164.9	2155.2	1497.6	2017.4	2067.0	1805.2	1973.6	2019.3	2157.4
	Ann		2645.4	3011.6	3063.6	2928.1	3068.5	3054.8	2122.8	2859.4	2929.8	2558.7	2797.3	2862.2	3057.8
chi square category against sum rest			OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS-G
			46.418	5.173	7.802	18.019	29.134	0.144	23.916	30.480	2.471	52.077	2.062	67.650	3.050
			0.709	3.481	1.628	0.453	4.326	0.260	6.457	0.068	6.498	1.481	2.335	0.023	0.096
			12.163	0.832	0.580	12.131	8.139	1.287	0.006	3.860	4.802	10.709	1.336	14.379	0.981
			26.029	10.430	4.340	3.949	9.616	0.027	21.554	70.831	28.874	30.902	0.011	49.569	9.869
Sign and significance (with 3 degrees of freedom)			(+)**	(+)	(+)	(+)**	(+)**	(+)	(+)**	(-)**	(+)	(-)**	(-)	(-)**	(-)
** = p < 0.01 (chi square > 11.34)			(-)	(+)	(-)	(-)	(-)	(+)	(-)	(+)	(+)	(+)	(+)	(+)	(-)
* + p < 0.05 (chi square > 7.81)			(-)**	(-)	(-)	(-)**	(-)*	(-)	(+)	(-)	(+)	(+)*	(+)	(+)**	(-)
			(-)**	(-)*	(-)	(-)	(-)*	(+)	(-)**	(+)**	(-)**	(+)**	(-)	(+)**	(+)*

Table 15. Comparison of selected main statistics (after removal of grain pests) for drains and gulleys at the four sites. See notes to Table 3.

Feature	N		OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS	G	SS-G
Lanes 1	828	N	105	13	3	52	2	6	190	69	25	594	55	61	478	469	9
		%	13	2	+	6	+	1	23	8	3	72	7	7	58	57	1
-G	359	N	105	13	3	52	2	6	190	69	25	125	55	61	9		
		%	29	4	1	14	1	2	53	19	7	35	15	17	3		
Lanes 2	1755	N	487	93	29	154	7	18	656	164	129	798	201	190	407	392	15
		%	28	5	2	9	+	1	37	9	7	45	11	11	23	22	1
-G	1363	N	487	93	29	154	7	18	656	164	129	406	201	190	15		
		%	36	7	2	11	1	1	37	12	9	30	15	14	1		
Castle Street	367	N	52	15	2	19	0	4	137	28	41	209	37	41	131	130	1
		%	14	4	1	5	0	1	37	8	11	57	10	11	36	35	0
-G	237	N	52	15	2	19	0	4	137	20	41	79	37	41	1		
		%	22	6	1	8	0	2	58	8	17	33	16	17	0		
Annetwell Street	1698	N	305	40	9	136	0	25	690	223	95	914	245	204	465	444	21
		%	18	2	1	8	0	1	41	13	6	54	14	12	27	26	1
-G	1254	N	305	40	9	136	0	25	690	223	95	470	245	204	21		
		%	24	3	1	11	0	2	55	18	8	37	20	16	2		

Table 16. Test for significance of variation between statistics for gully and drain fills at the four sites. Statistics after removal of grain pests.

GULLEYS		Total coded inds minus G	OB	W	D	P	M	L	RT	RD	RF	SA-G	SF	ST	SS-G
observed	Lanes 1	715	105	13	3	52	2	6	190	69	25	125	55	61	9
	Lanes 2	2549	487	93	29	154	7	18	656	164	129	406	201	190	15
	CST	448	52	15	2	19	0	4	137	20	41	79	37	41	1
	Ann	2463	305	40	9	136	0	25	690	223	95	470	245	204	21
totals		6175	949	161	43	361	9	53	1673	476	290	1080	538	496	46
proportion			0.154	0.026	0.007	0.058	0.001	0.009	0.271	0.077	0.047	0.175	0.087	0.080	0.007
predicted	Lanes 1		110	19	5	42	1	6	194	55	34	125	62	57	5
	Lanes 2		392	66	18	149	4	22	691	196	120	446	222	205	19
	CST		69	12	3	26	1	4	121	35	21	78	39	36	3
	Ann		379	64	17	144	4	21	667	190	116	431	215	198	18
sums minus categories:			OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS-G
observed	Lanes 1		610	702	712	663	713	709	525	275	250	590	660	654	706
	Lanes 2		2062	2456	2520	2395	2542	2531	1893	941	812	2143	2348	2359	2534
	CST		396	433	446	429	448	444	311	570	598	369	411	407	447
	Ann		2158	2423	2454	2327	2463	2438	1773	2479	2548	1993	2218	2259	2442
sums minus categories			OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS-G
predicted	Lanes 1		605	696	710	673	714	709	521	660	681	590	653	658	710
	Lanes 2		2157	2483	2531	2400	2545	2527	1858	2353	2429	2103	2327	2344	2530
	CST		379	436	445	422	447	444	327	413	427	370	409	412	445
	Ann		2084	2399	2446	2319	2459	2442	1796	2273	2347	2032	2248	2265	2445
chi square category against sum rest			OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS-G
			0.257	1.753	0.792	2.644	0.882	0.003	0.098	3.790	2.300	0.000	0.936	0.241	2.553
			27.370	10.882	7.180	0.177	2.909	0.693	2.378	5.821	0.756	4.310	2.192	1.155	0.844
			4.873	0.969	0.405	2.097	0.654	0.006	2.758	6.628	19.869	0.006	0.116	0.760	1.649
			16.875	9.377	3.901	0.471	3.595	0.711	1.059	6.268	3.876	4.329	4.721	0.209	0.386
Sign and significance (with 3 degrees of freedom)			(-)	(-)	(-)	(+)	(+)	(=)	(-)	(+)	(-)	(=)	(-)	(+)	(+)
** = p < 0.01 (chi square > 11.34)			(+)**	(+)*	(+)	(+)	(+)	(-)	(-)	(-)	(+)	(-)	(-)	(-)	(-)
* + p < 0.05 (chi square > 7.81)			(-)	(+)	(-)	(-)	(-)	(=)	(+)	(-)	(+)**	(+)	(-)	(+)	(-)
			(-)**	(-)*	(-)	(-)	(-)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(+)

Table 17. Comparison of selected main statistics (before and after removal of G) for pits at the four sites. See notes to Table 3.

Feature	N		OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS	G	SS-G
Lanes 1	447	N	90	17	3	31	0	5	183	86	24	261	80	46	135	128	7
		%	20	4	1	7	0	1	41	19	5	58	18	10	30	29	1
-G	319	N	90	17	3	31	0	5	183	86	24	133	80	46	7		
		%	28	5	1	10	0	2	57	27	8	42	25	14	2		
Lanes 2	3802	N	916	132	58	312	17	34	1574	262	315	1882	422	451	1009	984	25
		%	24	3	2	8	1	1	41	7	8	50	11	12	27	26	1
-G	2818	N	916	132	58	312	17	34	1574	262	315	898	422	451	25		
		%	33	5	2	11	1	1	56	9	11	32	15	16	1		
Castle Street	339	N	53	8	1	25	0	3	133	28	24	153	49	33	108	104	7
		%	16	2	+	7	0	1	39	8	7	45	14	10	32	31	1
-G	235	N	53	8	1	25	0	3	133	28	24	86	49	33	4		
		%	23	3	0	11	0	1	57	12	10	37	21	14	2		
Annetwell Street	2547	N	306	37	8	128	2	22	1025	368	66	1639	394	383	862	838	24
		%	12	1	+	5	+	1	40	14	3	64	15	15	34	33	1
-G	1709	N	306	37	8	128	2	22	1025	368	66	801	394	383	24		
		%	18	2	+	7	+	1	60	22	4	47	23	22	1		

Table 18. Test for significance of variation between statistics for pit fills at the four sites. Statistics after removal of grain pests.

		Total coded inds minus G	OB	W	D	P	M	L	RT	RD	RF	SA-G	SF	ST	SS-G	
observed	Lanes 1	705	90	17	3	31	0	5	183	86	24	133	80	46	7	
	Lanes 2	5416	916	132	58	312	17	34	1574	262	315	898	422	451	25	
	CST	447	53	8	1	25	0	3	133	28	24	86	49	33	4	
	Ann	3564	306	37	8	128	2	22	1025	368	66	801	394	383	24	
totals			1365	194	70	496	19	64	2915	744	429	1918	945	913	60	
proportion			0.135	0.019	0.007	0.049	0.002	0.006	0.288	0.073	0.042	0.189	0.093	0.090	0.006	
predicted	Lanes 1	705	95	13	5	35	1	4	203	52	30	133	66	64	4	
	Lanes 2	5416	730	104	37	265	10	34	1558	398	229	1025	505	488	32	
	CST	447	60	9	3	22	1	3	129	33	19	85	42	40	3	
	Ann	3564	480	68	25	174	7	23	1025	262	151	675	332	321	21	
sums minus categories:			OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS-G	
observed	Lanes 1		615	688	702	674	705	700	522	290	266	572	625	659	698	
	Lanes 2		4500	5284	5358	5104	5399	5382	3842	2111	1796	4518	4994	4965	5391	
	CST		394	439	446	422	447	444	314	525	587	361	398	414	443	
	Ann		3258	3527	3556	3436	3562	3542	2539	4711	4907	2763	3170	3181	3540	
sums minus categories			OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS-G	
predicted	Lanes 1		610	692	700	670	704	701	502	653	675	572	639	641	701	
	Lanes 2		4686	5312	5379	5151	5406	5382	3858	5018	5187	4391	4911	4928	5384	
	CST		387	438	444	425	446	444	318	414	428	362	405	407	444	
	Ann		3084	3496	3539	3390	3557	3541	2539	3302	3413	2889	3232	3243	3543	
chi square category against sum rest			OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS-G	
	Lanes 1		0.302	0.926	0.723	0.376	1.325	0.068	2.722	24.429	1.197	0.002	3.404	5.315	1.923	
	Lanes 2		55.002	7.873	11.400	8.711	4.620	0.001	0.225	49.972	33.428	19.483	15.093	3.089	1.569	
	CST		1.001	0.037	1.422	0.467	0.840	0.011	0.211	0.765	1.420	0.028	1.413	1.446	0.696	
	Ann		72.997	14.581	11.300	13.015	3.288	0.012	0.000	46.592	49.882	29.179	12.585	13.089	0.399	
Sign and significance (with 3 degrees of freedom)			(-)	(+)	(-)	(-)	(-)	(+)	(-)	(+)**	(-)	(=)	(+)	(-)	(-)	
** = p < 0.01 (chi square > 11.34)			(+)**	(+)*	(+)**	(+)*	(+)	(=)	(+)	(-)**	(+)**	(-)**	(-)**	(-)	(-)	
* + p < 0.05 (chi square > 7.81)			(-)	(-)	(-)	(+)	(-)	(=)	(+)	(-)	(+)	(+)	(+)	(-)	(+)	
			(-)**	(-)**	(-)*	(-)**	(-)	(-)	(=)	(+)**	(-)**	(+)**	(+)**	(+)**	(+)**	(+)

Table 19. Comparison of selected main statistics (after removal of grain pests) for 'floors' at the four sites. See notes to Table 3.

Feature	N		OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS	G	SS-G
Lanes 1	223	N	68	9	2	37	0	16	93	44	14	90	44	23	23	22	1
		%	30	4	1	17	0	7	42	20	6	40	20	10	10	10	0
-G	201	N	68	9	2	37	0	16	93	44	14	68	44	23	1		
		%	34	4	1	18	0	8	46	22	7	34	22	11	+		
Lanes 2	0	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-G	0	N	0	0	0	0	0	0	0	0	0	0	0	0	0		
		%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Castle Street	2551	N	208	27	13	85	2	31	885	181	113	1761	225	250	1286	1267	19
		%	8	1	1	3	+	1	35	7	4	69	9	10	50	50	1
-G	1284	N	208	27	13	85	2	31	885	181	113	494	225	250	19		
		%	16	2	1	7	+	2	69	14	9	38	18	19	1		
Annetwell Street	1309	N	204	16	5	97	0	16	595	256	46	782	231	229	322	300	22
		%	16	1	+	7	0	1	46	20	4	60	18	18	25	23	2
-G	1009	N	204	16	5	97	0	16	595	256	46	482	231	229	22		
		%	20	2	+	10	0	2	59	25	5	48	23	23	2		

Table 20. Test for significance of variation between statistics for floors at three sites. Statistics after removal of grain pests.

		Total coded inds minus G	OB	W	D	P	M	L	RT	RD	RF	SA-G	SF	ST	SS-G
observed	Lanes 1	201	68	9	2	37	0	16	93	44	14	68	44	23	1
	CST	1284	208	27	13	85	2	31	885	181	113	494	225	250	19
	Ann	1009	204	16	5	97	0	16	595	256	46	482	231	229	22
totals			480	52	20	219	2	63	1573	481	173	1044	500	502	42
proportion			0.1925	0.0209	0.0080	0.0878	0.0008	0.0253	0.6307	0.1929	0.0694	0.4186	0.2005	0.2013	0.0168
predicted	Lanes 1		39	4	2	18	0	5	127	39	14	84	40	40	3
	CST		247	27	10	113	1	32	810	248	89	537	257	258	22
	Ann		194	21	8	89	1	25	636	195	70	422	202	203	17
sums minus categories:			OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS-G
observed	Lanes 1		133	192	199	164	201	185	108	157	187	133	157	178	200
	CST		1076	1257	1271	1199	1282	1253	399	1103	1171	790	1059	1034	1265
	Ann		805	993	1004	912	1009	993	414	753	963	527	778	780	987
sums minus categories			OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS-G
predicted	Lanes 1		162.3	196.8	199.4	183.4	200.8	195.9	74.2	162.2	187.1	116.9	160.7	160.5	197.6
	CST		1036.9	1257.2	1273.7	1171.3	1283.0	1251.6	474.2	1036.4	1194.9	746.5	1026.6	1025.6	1262.4
	Ann		814.8	988.0	1000.9	920.4	1008.2	983.5	372.6	814.4	939.0	586.6	806.7	805.9	992.0
chi square category against sum rest			OB	W	D	P	M	L	RT	RD	RF	SA	SF	ST	SS-G
	Lanes 1		27.509	5.636	0.094	23.256	0.161	24.106	24.365	0.876	0.000	5.325	0.426	9.432	1.709
	CST		7.669	0.002	0.715	7.487	0.915	0.065	18.891	22.215	6.911	6.052	5.106	0.346	0.324
	Ann		0.613	1.232	1.191	0.873	0.810	3.623	7.290	24.003	8.836	14.479	5.098	4.137	1.501
Sign and significance (with 3 degrees of freedom)			(+)**	(+)	(=)	(+)**	(=)	(-)**	(-)**	+	(=)	(-)	(+)	(-)*	(-)
** = p < 0.01 (chi square > 11.34)			(-)	(=)	(+)	(-)	(+)	(-)	(+)**	(-)**	(+)	(-)	(-)	(-)	(-)
* + p < 0.05 (chi square > 7.81)			(-)	(-)	(-)	(+)	(-)	(-)	(+)**	(-)*	(+)**	(+)	(+)	(+)	(+)

Table 21. The more abundant taxa from floors at Annetwell Street, Castle Street and Lanes 1 (there were no insect assemblages from floors at Lanes 2).

ANN	n	%									
Oryzaephilus surinamensis	124	9.5	Anobium punctatum	8	0.6	Oxytelus sculptus	24	0.9	Omalium ?rivulare	5	0.2
Aleocharinae spp.	116	8.9	Coleoptera sp.	8	0.6	Anthicus formicarius	23	0.9	Platystethus arenarius	5	0.2
Cryptolestes fer rugineus	101	7.7	Megasternum obscurum	7	0.5	Anobium punctatum	22	0.9	Staphylininae sp. A	5	0.2
Lathridius minutus group	95	7.3	Oxytelus sculptus	7	0.5	Carpelimus bilineatus	21	0.8	Cordalia obscura	5	0.2
Cryptophagus spp.	69	5.3	Tachyporus sp.	7	0.5	Atomaria spp.	20	0.8	Corticaria spp.	5	0.2
Sitophilus granarius	50	3.8	Rhizophagus parallelocollis	7	0.5	Ptinus ?fur	18	0.7	Corticarina ?fuscula	5	0.2
Xylodromus concinnus	42	3.2	Anotylus nitidulus	6	0.5	Cercyon terminatus	16	0.6	Trechus obtusus or quadristriatus	4	0.2
Ptinus fur	35	2.7	Staphylininae sp.	6	0.5	Philonthus spp.	15	0.6	Leptacinus sp.	4	0.2
Corticaria spp.	29	2.2	Gyrophypnus fracticornis	5	0.4	Helophorus spp.	14	0.5	Staphylininae sp. B	4	0.2
Anthicus formicarius	27	2.1	Gyrophypnus sp.	5	0.4	Megasternum obscurum	14	0.5	Tenebrio obscurus	4	0.2
Palorus ratzeburgi	25	1.9	Curculionidae sp.	5	0.4	Carpelimus pusillus group	13	0.5	Ceutorhynchus sp. B	4	0.2
Cercyon analis	24	1.8	Omalium sp.	4	0.3	Anotylus nitidulus	13	0.5	Coleoptera sp.	4	0.2
Aphodius spp.	21	1.6	Geotrupes sp.	4	0.3	Auchenorhyncha spp.	12	0.5	total	2553	%
Typhaea stercorea	20	1.5	Aphodius contaminatus	4	0.3	Carabidae spp.	11	0.4			
Auchenorhyncha spp.	19	1.5	Ptinidae sp.	4	0.3	Philonthus ?ventralis	10	0.4	Lanes 1		
Carpelimus bilineatus	19	1.5	Monotoma longicollis	4	0.3	Halticinae spp.	10	0.4	Aleocharinae spp.	18	8.1
Philonthus spp.	18	1.4	Corticarina sp.	4	0.3	Ephistemus globulus	9	0.4	Anobium punctatum	14	6.3
Carabidae spp.	17	1.3	Ceuthorhynchinae sp.	4	0.3	Acrotrichis sp.	8	0.3	Lathridius minutus group	14	6.3
Euplectini sp.	17	1.3	Gymnetron sp. B	4	0.3	Omalium caesum or italicum	8	0.3	Ptinus fur	11	5.0
Carpelimus pusillus group	16	1.2	Total	1310		Monotoma longicollis	8	0.3	Oryzaephilus surinamensis	11	5.0
Helophorus spp.	15	1.1				Typhaea stercorea	8	0.3	Aphodius spp.	10	4.5
Apion sp.	15	1.1	CST			Trechus quadristriatus	7	0.3	Cryptophagus spp.	10	4.5
Atomaria spp.	14	1.1	Oryzaephilus surinamensis	743	29.1	Stenus spp.	7	0.3	Apion spp.	10	4.5
Cryptophagus s cutellatus	12	0.9	Cryptolestes fer rugineus	364	14.3	Monotoma picipes	7	0.3	Helophorus spp.	8	3.6
Anotylus tetracarinus	11	0.8	Acrotrichis spp.	244	9.6	Enicmus sp.	7	0.3	Cryptolestes fer rugineus	7	3.2
Halticinae spp.	11	0.8	Aleocharinae spp.	101	4.0	Apion spp.	7	0.3	Anotylus tetracarinus	5	2.3
Ptenidium sp.	10	0.8	Sitophilus granarius	85	3.3	Lyctocoris campestris	6	0.2	Atomaria sp.	5	2.3
Platystethus arenarius	10	0.8	Palorus ratzeburgi	75	2.9	Cercyon sp.	6	0.2	Xylodromus concinnus	3	1.4
Anotylus rugosus	10	0.8	Cryptophagus spp.	60	2.4	Anotylus tetracarinus	6	0.2	Platystethus arenarius	3	1.4
Monotoma bicolor	10	0.8	Lathridius minutus group	57	2.2	Gyrophypnus fracticornis	6	0.2	Anotylus nitidulus	3	1.4
Acritus nigricornis	9	0.7	Cercyon atricapillus	49	1.9	Gyrophypnus sp.	6	0.2	Phyllopertha horticola	3	1.4
Ptenidium pusillum	9	0.7	Cercyon analis	41	1.6	Aphodius ?prodromus	6	0.2	Sitophilus granarius	3	1.4
Phyllopertha horticola	9	0.7	Xylodromus concinnus	40	1.6	Monotoma sp.	6	0.2	Total	221	
Trechus obtusus or quadristriatus	8	0.6	Ptenidium spp.	29	1.1	?Gymnetron sp.	6	0.2			
			Aphodius spp. and spp. indet.	27	1.1	Catops fuliginosus	5	0.2			

Table 22. Phytophages and other strongly plant-associated taxa by site.

Lanes 1			
	n	% of P	% of NOB
Auchenorhyncha spp.	49	11.6	3.9
Phyllopertha horticola	49	11.6	3.9
Apion spp.	43	10.1	3.5
Longitarsus spp.	34	8.0	2.7
Meligethes sp.	24	5.7	1.9
Halticinae spp.	23	5.4	1.8
Chrysomelinae spp.	14	3.3	1.1
Sitona spp. and spp. indet.	12	2.8	1.0
Micrelus ericae	11	2.6	0.9
Gastrophysa viridula	10	2.4	0.8
Ulopa reticulata	9	2.1	0.7
Macrodema micropterum	7	1.7	0.6
Lygaeidae sp.	7	1.7	0.6
Chaetocnema concinna	7	1.7	0.6
Stygnocoris pedestris	6	1.4	0.5
Phyllotreta nemorum group	6	1.4	0.5
Ceuthorhynchinae spp. indet.	6	1.4	0.5
Mecinus pyras ter	6	1.4	0.5
Brachypterus sp.	5	1.2	0.4
Phyllotreta sp.	5	1.2	0.4
Agallia brachyptera	4	0.9	0.3
Conomelus anceps	4	0.9	0.3
Ctenicera cuprea	4	0.9	0.3
Altica sp.	4	0.9	0.3
Notaris acridulus	4	0.9	0.3
Ceutorhynchus sp.	4	0.9	0.3
Scolopostethus sp.	3	0.7	0.2
Berytinus minor and B. sp.	3	0.7	0.2
Psylloidea sp.	3	0.7	0.2

Melolonthinae/Rutelinae/Cetoniinae sp.	3	0.7	0.2
Chrysomelidae sp.	3	0.7	0.2
Sitona ?lepidus	3	0.7	0.2
Dorytomus sp.	3	0.7	0.2
Gymnetron sp.	3	0.7	0.2
Miridae sp.	2	0.5	0.2
Trioza urticae	2	0.5	0.2
Byrrhidae sp.	2	0.5	0.2
Donaciinae sp.	2	0.5	0.2
Lochmaea suturalis	2	0.5	0.2
Chaetocnema arida group	2	0.5	0.2
Phyllobius or Polydrusus sp.	2	0.5	0.2
Sitona regensteiniensis	2	0.5	0.2
Hypera sp.	2	0.5	0.2
Dolycoris baccarum	1	0.2	0.1
Pentatomoidea sp.	1	0.2	0.1
Pachybrachius fracticollis	1	0.2	0.1
Drymus sp.	1	0.2	0.1
Megophthalmus ?scanicus	1	0.2	0.1
Aphrodes flavostriatus	1	0.2	0.1
Livia juncorum	1	0.2	0.1
Strophingia ericae	1	0.2	0.1
Simplocaria sp.	1	0.2	0.1
Phalacridae sp.	1	0.2	0.1
Chrysolina sp.	1	0.2	0.1
Hydrothassa sp.	1	0.2	0.1
Galerucella sp.	1	0.2	0.1
Crepidodera sp.	1	0.2	0.1
?Chaetocnema sp.	1	0.2	0.1
?Psylliodes sp.	1	0.2	0.1
Apion (Oxystoma) subulatum	1	0.2	0.1
Sitona lepidus	1	0.2	0.1

Sitona sulcifrons	1	0.2	0.1
Hypera nigrirostris	1	0.2	0.1
Cidnorhinus quadrimaculatus	1	0.2	0.1
Rhinoncus pericarpus	1	0.2	0.1
Limnobaris pilistriata	1	0.2	0.1
Curculio (Balanobius) sp.	1	0.2	0.1
Gymnetron labile	1	0.2	0.1
NP	424		
NOB	1245		

Table 22 continued.

Lanes 2			
	n	% of P	% of NOB
Apion spp.	80	13.8	4.7
Auchenorhyncha sp.	54	9.3	3.2
Phyllopertha horticola	35	6.0	2.1
Longitarsus spp.	30	5.2	1.8
Phyllotreta nemorum group	27	4.6	1.6
Chrysomelinae spp.	26	4.5	1.5
Meligethes sp.	25	4.3	1.5
Halticinae spp.	20	3.4	1.2
Conomelus anceps	13	2.2	0.8
Delphacidae spp.	13	2.2	0.8
Brachypterus sp.	12	2.1	0.7
Sitona spp. and spp. indet.	12	2.1	0.7
Scolopostethus sp. indet.	11	1.9	0.6
Ulopa reticulata	11	1.9	0.6
Simplocaria ?semistriata	11	1.9	0.6
Lygaeidae sp.	10	1.7	0.6
Gastrophysa polygoni	9	1.5	0.5
Chaetocnema concinna	9	1.5	0.5
Ceutorhynchus spp. and spp. indet.	9	1.5	0.5
Gastrophysa viridula	8	1.4	0.5
Ceuthorhynchinae spp. and spp. indet.	8	1.4	0.5
Psylloidea sp.	7	1.2	0.4
Gastrophysa spp. indet.	7	1.2	0.4
Notaris acridulus	7	1.2	0.4
Galerucella sp.	6	1.0	0.4
Gymnetron sp. and sp. indet.	6	1.0	0.4
Macrodema micropterum	5	0.9	0.3
Anthocoris sp.	5	0.9	0.3
Plateumaris sp.	5	0.9	0.3
Phyllotreta sp.	5	0.9	0.3

Donaciinae sp.	4	0.7	0.2
Hydrothassa sp.	4	0.7	0.2
Hypera sp.	4	0.7	0.2
Micrelus ericae	4	0.7	0.2
Ceutorhynchus erysimi	4	0.7	0.2
Gastrophysa ?viridula	3	0.5	0.2
Cimicidae sp.	2	0.3	0.1
Aphrodes sp.	2	0.3	0.1
Olibrus sp.	2	0.3	0.1
Rhizobius litura	2	0.3	0.1
Chilocorus bipustulatus	2	0.3	0.1
Coccinellidae sp.	2	0.3	0.1
?Chrysolina sp.	2	0.3	0.1
Galerucinae sp.	2	0.3	0.1
Chaetocnema arida group	2	0.3	0.1
Apion (Oxystoma) sp.	2	0.3	0.1
Phyllobius or Polydrusus sp.	2	0.3	0.1
Sitona suturalis	2	0.3	0.1
Hypera punctata	2	0.3	0.1
Rhinoncus pericarpus	2	0.3	0.1
Rhinoncus sp. indet.	2	0.3	0.1
Gymnetron ?pascuorum	2	0.3	0.1
Zicrona caerulea	1	0.2	0.1
Pentatomidae sp.	1	0.2	0.1
Pachybrachius fracticollis	1	0.2	0.1
Scolopostethus ?decoratus	1	0.2	0.1
Berytinus sp.	1	0.2	0.1
Melolonthinae/Rutelinae/Cetoniae sp.	1	0.2	0.1
?Byrrhus sp.	1	0.2	0.1
Byrrhidae sp. indet.	1	0.2	0.1
Ctenicera ?cuprea	1	0.2	0.1
Kateretes sp.	1	0.2	0.1

Coccidula rufa	1	0.2	0.1
Donacia sp.	1	0.2	0.1
Prasocuris phellandrii	1	0.2	0.1
?Chrysomela aenea	1	0.2	0.1
Chrysomela sp.	1	0.2	0.1
Altica sp.	1	0.2	0.1
Crepidodera sp.	1	0.2	0.1
?Crepidodera sp.	1	0.2	0.1
Chalcoides sp.	1	0.2	0.1
?Sphaeroderma sp.	1	0.2	0.1
Psylliodes sp. A	1	0.2	0.1
Psylliodes sp. B	1	0.2	0.1
Cassida sp.	1	0.2	0.1
Otiorhynchus ligneus	1	0.2	0.1
Otiorhynchus sp. indet.	1	0.2	0.1
?Barypeithes sp.	1	0.2	0.1
Sciaphilus asperatus	1	0.2	0.1
Sitona cambricus	1	0.2	0.1
Sitona lepidus	1	0.2	0.1
Sitona ?lepidus	1	0.2	0.1
Notaris ?acridulus	1	0.2	0.1
Cidnorhinus quadrimaculatus	1	0.2	0.1
Ceuthorhynchidius sp.	1	0.2	0.1
Ceutorhynchus contractus	1	0.2	0.1
Ceutorhynchus ?erysimi	1	0.2	0.1
Ceutorhynchus ?melanostictus	1	0.2	0.1
Rhinoncus ?bruchoides	1	0.2	0.1
?Baris sp.	1	0.2	0.1
Mecinus ?pyra ster	1	0.2	0.1
Gymnetron labile	1	0.2	0.1
NP	581		
NOB	1705		

Table 22 continued.

CST	n	% of P	% of NOB
Auchenorhyncha sp.	37	15.4	5.8
Halticinae spp.	31	12.9	4.8
Apion spp.	15	6.3	2.3
Conomeilus anceps	14	5.8	2.2
Meligethes spp.	14	5.8	2.2
Ceutorhynchus spp.	14	5.8	2.2
Phyllotreta nemorum group	11	4.6	1.7
Sitona spp. and spp. indet.	10	4.2	1.6
Phyllopertha horticola	8	3.3	1.2
?Longitarsus sp.	7	2.9	1.1
?Gymnetron sp.	7	2.9	1.1
Melolonthinae/Rutelinae/Cetoninae sp.	6	2.5	0.9
Chrysomelinae spp.	6	2.5	0.9
Simplocaria ?semistriata	5	2.1	0.8
Melolonthinae sp.	4	1.7	0.6
Sitona lepidus	4	1.7	0.6
Donaciinae sp.	3	1.3	0.5
Phyllotreta sp.	3	1.3	0.5
Phyllobius or Polydrusus sp.	3	1.3	0.5
Hypera sp.	3	1.3	0.5
Lygaeidae sp. indet.	2	0.8	0.3
Lema or Oulema sp.	2	0.8	0.3
Gastrophysa polygona	2	0.8	0.3
Psylliodes sp.	2	0.8	0.3
?Hypera nigrirostris	2	0.8	0.3
Notaris acridulus	2	0.8	0.3
Heterogaster urticae	1	0.4	0.2
Drymus ?sylvaticus	1	0.4	0.2
?Scolopostethus sp.	1	0.4	0.2

?Anthocoris sp.	1	0.4	0.2
?Ulopa reticulata	1	0.4	0.2
Phalacridae sp.	1	0.4	0.2
Coccidula scutellata	1	0.4	0.2
Anisosticta novemdecimpunctata	1	0.4	0.2
Chrysolina banksi	1	0.4	0.2
Chrysolina marginata	1	0.4	0.2
Gastrophysa viridula	1	0.4	0.2
?Gastrophysa sp.	1	0.4	0.2
Phytodecta sp.	1	0.4	0.2
?Chaetocnema concinna	1	0.4	0.2
?Phyllobius sp.	1	0.4	0.2
?Polydrusus cervinus	1	0.4	0.2
Barynotus sp.	1	0.4	0.2
Sitona hispidulus	1	0.4	0.2
Sitona ?lineatus	1	0.4	0.2
Hypera punctata	1	0.4	0.2
Micrelus ericae	1	0.4	0.2
?Rhinoncus pericarpus	1	0.4	0.2
?Rhinoncus sp.	1	0.4	0.2
NP	240		
NOB	643		

Table 22 continued.

ANN	n	% of P	% of NOB
Auchenorhyncha spp.	99	16.3	6.9
Halticinae spp.	75	12.4	5.3
Apion spp.	68	11.2	4.8
Meligethes spp.	39	6.4	2.7
Phyllotreta nemorum group	33	5.4	2.3
Phyllopertha horticola	31	5.1	2.2
Chrysomelinae spp.	20	3.3	1.4
Sitona spp. and spp. indet.	15	2.5	1.1
Conomelus anceps	14	2.3	1.0
Melolonthinae/ Rutelinae/Cetoniinae sp.	12	2.0	0.8
Longitarsus spp.	12	2.0	0.8
Lygaeidae spp.	11	1.8	0.8
Ceuthorhynchinae sp.	11	1.8	0.8
Ceutorhynchus spp. and spp. indet.	10	1.6	0.7
Gymnetron spp. and spp. indet.	10	1.6	0.7
Phyllobius or Polydrusus sp.	9	1.5	0.6
Agriotes sp.	7	1.2	0.5
Phyllotreta spp.	7	1.2	0.5
Ceutorhynchus contractus	7	1.2	0.5
Chaetocnema concinna	6	1.0	0.4
Apion (Protapion) sp.	6	1.0	0.4
Berytinus sp.	5	0.8	0.4
Sitona lepidus	5	0.8	0.4
Notaris acridulus	5	0.8	0.4
Byrrhidae sp.	4	0.7	0.3
Coccinellidae sp.	4	0.7	0.3
Aphthona nonstriata	4	0.7	0.3
Hypera sp.	4	0.7	0.3
Scolopostethus sp.	3	0.5	0.2

Cimicidae sp.	3	0.5	0.2
Psylliodes sp.	3	0.5	0.2
Apion (Oxystoma) craccae	3	0.5	0.2
?Strophosomus sp.	3	0.5	0.2
Sitona hispidulus	3	0.5	0.2
Ulopa reticulata	2	0.3	0.1
Melolontha sp.	2	0.3	0.1
Agriotes ?obscurus	2	0.3	0.1
Brachypterus sp.	2	0.3	0.1
Anisosticta novemdecimpunctata	2	0.3	0.1
Hydrothassa sp.	2	0.3	0.1
Galerucella sp.	2	0.3	0.1
Chaetocnema sp.	2	0.3	0.1
Strophosomus ?melanogrammus	2	0.3	0.1
Hypera nigrirostris	2	0.3	0.1
Hypera punctata	2	0.3	0.1
Ceutorhynchus erysimi	2	0.3	0.1
Rhinoncus sp.	2	0.3	0.1
Mecinus pyras ter	2	0.3	0.1
Stygnocoris pedestris	1	0.2	0.1
Dictyla convergens	1	0.2	0.1
?Anthocoris sp.	1	0.2	0.1
?Lygoecoris sp.	1	0.2	0.1
Miridae sp.	1	0.2	0.1
Aphrodes flavostriatus	1	0.2	0.1
Simplocaria sp.	1	0.2	0.1
Byrrhus sp.	1	0.2	0.1
?Coccidula sp.	1	0.2	0.1
Chrysolina polita	1	0.2	0.1
?Chrysolina sp.	1	0.2	0.1
Gastrophysa viridula	1	0.2	0.1
Phaedon sp.	1	0.2	0.1
Crepidodera sp.	1	0.2	0.1

Chaetocnema arida group	1	0.2	0.1
Chaetocnema or Psylliodes sp.	1	0.2	0.1
Apion (Oxystoma) subulatum	1	0.2	0.1
Apion (Oxystoma) ?subulatum	1	0.2	0.1
Barypeithes ?pellucidus	1	0.2	0.1
Strophosomus nebulosus	1	0.2	0.1
Barynotus sp.	1	0.2	0.1
Sitona ?humeralis	1	0.2	0.1
Sitona ?sulcifrons	1	0.2	0.1
?Micrelus ericae	1	0.2	0.1
Rhinoncus perpendicularis	1	0.2	0.1
Curculio (Balanobius) sp.	1	0.2	0.1
Gymnetron ?pascuorum	1	0.2	0.1
Rhynchaenus sp.	1	0.2	0.1
NP	607		
NOB	1428		

Table 23. Records of Carabidae (ground beetles, abbreviated to 'carabs') in rank order by site.

Lanes 1			
	n	% of carabs	% of NOB
Carabidae spp. and spp. indet.	66	30.4	5.3
Dyschirius globosus	23	10.6	1.8
Trechus obtusus or quadristriatus	21	9.7	1.7
Pterostichus sp.	16	7.4	1.3
Bradycellus ruficollis	16	7.4	1.3
Bembidion spp. and spp. indet.	14	6.5	1.1
Amara spp.	10	4.6	0.8
Clivina fossor	5	2.3	0.4
Pterostichus diligens	5	2.3	0.4
Bradycellus sp. and sp. indet.	5	2.3	0.4
Notiophilus sp.	4	1.8	0.3
Olisthopus rotundatus	4	1.8	0.3
Bembidion (Philochthus) sp.	3	1.4	0.2
Pterostichus (Poecilus) sp.	3	1.4	0.2
Carabus sp.	2	0.9	0.2
Bembidion lampros	2	0.9	0.2
Pterostichus melanarius	2	0.9	0.2
Calathus fuscipes	2	0.9	0.2
Calathus sp. indet.	2	0.9	0.2
Agonum sp.	2	0.9	0.2
Lebiini sp.	2	0.9	0.2
Nebria sp.	1	0.5	0.1
?Patrobus sp.	1	0.5	0.1
Bembidion lampros or properans	1	0.5	0.1
?Bembidion sp.	1	0.5	0.1
Abax parallelepipedus	1	0.5	0.1
Calathus ?melanocephalus	1	0.5	0.1
Trichocellus sp.	1	0.5	0.1
?Carabidae sp.	1	0.5	0.1

Total Trechus obtusus and quadristriatus	21	9.7	1.7
N carabs	217		17.4
NOB	1245		

Lanes 2			
	n	% of carabs	% of NOB
Carabidae spp. and spp. indet.	66	18.0	3.9
Trechus obtusus	35	9.5	2.1
Trechus obtusus or quadristriatus	32	8.7	1.9
Pterostichus spp. and spp. indet.	27	7.4	1.6
Clivina fossor	22	6.0	1.3
Bembidion spp. and spp. indet.	22	6.0	1.3
Dyschirius globosus	20	5.4	1.2
Amara spp.	13	3.5	0.8
Pterostichus melanarius	12	3.3	0.7
Bembidion lampros or properans	9	2.5	0.5
Nebria brevicollis	8	2.2	0.5
Bembidion lampros	8	2.2	0.5
Calathus fuscipes	8	2.2	0.5
Trechus quadristriatus	7	1.9	0.4
Bembidion (Philochthus) sp.	6	1.6	0.4
Calathus sp.	6	1.6	0.4
Carabus nemoralis	5	1.4	0.3
Harpalus spp.	5	1.4	0.3
Bradycellus sp. and sp. indet.	5	1.4	0.3
Loricera pilicornis	4	1.1	0.2
Trechus micros	4	1.1	0.2
Pterostichus diligens	4	1.1	0.2

Laemostenus terricola	4	1.1	0.2
Bradycellus ruficollis	4	1.1	0.2
Carabus sp. indet.	3	0.8	0.2
Bembidion ?saxatile	3	0.8	0.2
Harpalus rufipes	3	0.8	0.2
Notiophilus sp. indet.	2	0.5	0.1
Patrobus ?atorufus	2	0.5	0.1
Bembidion ?doris	2	0.5	0.1
Pterostichus diligens or strenuus	2	0.5	0.1
Calathus ?piceus	2	0.5	0.1
Agonum sp.	2	0.5	0.1
Notiophilus biguttatus	1	0.3	0.1
Bembidion guttula or mannerheimi	1	0.3	0.1
Pterostichus cupreus	1	0.3	0.1
Pterostichus niger	1	0.3	0.1
Pterostichus ?nigrita	1	0.3	0.1
Pterostichus (Poecilus) sp.	1	0.3	0.1
?Calathus sp.	1	0.3	0.1
Dromius linearis	1	0.3	0.1
?Microlestes sp.	1	0.3	0.1
Metabletus foveatus	1	0.3	0.1
Total Trechus obtusus and quadristriatus	74	20.2	4.3
N carabs	367		21.5
NOB	1705		

Table 23 continued.

CST			
	n	% of carabs	% of NOB
Carabidae spp. and spp. indet.	35	28.9	5.4
Pterostichus spp. and spp. indet.	9	7.4	1.4
Calathus melanocephalus	9	7.4	1.4
Trechus quadristriatus	8	6.6	1.2
Trechus obtusus or quadristriatus	7	5.8	1.1
Bembidion spp. indet.	6	5.0	0.9
Dyschirius ?globosus	4	3.3	0.6
Bembidion (Peryphus) sp.	4	3.3	0.6
Harpalus rufipes	4	3.3	0.6
Clivina fossor	3	2.5	0.5
Pterostichus melanarius	3	2.5	0.5
Calathus fuscipes	3	2.5	0.5
Laemostenus terricola	3	2.5	0.5
Carabus ?nemoralis	2	1.7	0.3
Bembidion lampros	2	1.7	0.3
Bembidion ?lunatum	2	1.7	0.3
Calathus sp. indet.	2	1.7	0.3
Amara sp.	2	1.7	0.3
Bradycellus harpalinus	2	1.7	0.3
Carabus sp.	1	0.8	0.2
Nebria brevicollis	1	0.8	0.2
Notiophilus aquaticus	1	0.8	0.2
Elaphrus riparius	1	0.8	0.2
Bembidion properans	1	0.8	0.2
Bembidion lampros or properans	1	0.8	0.2
Pterostichus ?strenuus	1	0.8	0.2
Pterostichus vernalis	1	0.8	0.2
Pterostichus (Argutor) sp.	1	0.8	0.2
Agonum dorsale	1	0.8	0.2
?Trichocellus sp.	1	0.8	0.2

Total Trechus obtusus and quadristriatus	15	12.4	2.3
N carabs	121		18.8
NOB	643		

ANN			
	n	% of carabs	% of NOB
Carabidae spp. and spp. indet.	104	35.6	7.3
Trechus obtusus or quadristriatus	29	9.9	2.0
Bembidion sp.	17	5.8	1.2
Clivina fossor	15	5.1	1.1
Dyschirius globosus	13	4.5	0.9
Amara spp.	13	4.5	0.9
Pterostichus spp. and spp. indet.	11	3.8	0.8
Pterostichus melanarius	10	3.4	0.7
Laemostenus terricola	10	3.4	0.7
Trechus quadristriatus	8	2.7	0.6
Bembidion lampros	6	2.1	0.4
Calathus sp.	6	2.1	0.4
Trechus micros	5	1.7	0.4
Agonum sp.	4	1.4	0.3
Harpalus sp.	4	1.4	0.3
Bembidion guttula	3	1.0	0.2
Bembidion (Philochthus) sp.	3	1.0	0.2
Pterostichus diligens	3	1.0	0.2
Pterostichus (Poecilus) sp.	3	1.0	0.2
Carabus sp.	2	0.7	0.1
Nebria brevicollis	2	0.7	0.1
Notiophilus sp. indet.	2	0.7	0.1

Trechus obtusus	2	0.7	0.1
Agonum dorsale	2	0.7	0.1
Harpalus rufipes	2	0.7	0.1
Carabus nemoralis	1	0.3	0.1
Notiophilus aquaticus	1	0.3	0.1
Notiophilus palustris	1	0.3	0.1
Clivina ?collaris	1	0.3	0.1
Bembidion (Peryphus) sp.	1	0.3	0.1
Bembidion guttula or unicolor	1	0.3	0.1
Pterostichus nigrita	1	0.3	0.1
Pterostichus diligens or strenuus	1	0.3	0.1
Pterostichus vernalis	1	0.3	0.1
Calathus fuscipes	1	0.3	0.1
Bradycellus ?ruficollis	1	0.3	0.1
Badister ?bipustulatus	1	0.3	0.1
Dromius ?quadrinotatus	1	0.3	0.1
Total Trechus obtusus and quadristriatus	39	13.4	2.7
N carabs	292		20.4
NOB	1428		

Table 24 Ranked lists for aquatic taxa by site.

Lanes 1	n	% of NW
Total W	194	
Helophorus spp. (not below)	107	55.2
Ochthebius spp. (mostly minimus)	24	12.4
Hydroporinae spp.	13	6.7
Helophorus aquaticus and grandis	17	8.8
Ochthebius ?minimus	7	3.6
Hydrobius fuscipes	6	3.1
Hydrophilinae sp.	6	3.1
Chaetarthria seminulum	4	2.1
Corixidae sp.	2	1.0
Colymbetinae sp.	2	1.0
Gyrinus sp.	2	1.0
Ochthebius ?bicolon	2	1.0
Hydraena sp.	2	1.0

Lanes 2	n	% of NW
Total W	290	
Helophorus spp. (not below)	140	48.3
Helophorus aquaticus and grandis	66	22.8
Ochthebius spp. (mostly ?minimus)	18	6.2
Hydroporinae spp.	26	9.0
Hydrobius fuscipes	9	3.1
Hydrophilinae sp.	5	1.7
Agabus bipustulatus	3	1.0
Anacaena ?globulus	3	1.0
Oulimnius sp.	3	1.0
Agabus sp.	2	0.7
Colymbetes fuscus	2	0.7
Dytiscidae sp.	2	0.7
Porhydrus lineatus	1	0.3
Ilybius sp.	1	0.3
Agabus or Ilybius sp.	1	0.3
?Dytiscidae sp.	1	0.3
Coelostoma orbiculare	1	0.3
?Anacaena sp.	1	0.3
?Laccobius sp.	1	0.3
Enochus sp.	1	0.3
Limnebius sp.	1	0.3
Esolus parallelepipedus	1	0.3
?Normandia nitens	1	0.3

CST	n	% of NW
Total W	101	
Helophorus spp. (not below)	53	52.5
Helophorus aquaticus and grandis	19	18.8
Ochthebius spp.	10	9.9
Hydroporinae spp.	4	4.0
Agabus bipustulatus	3	3.0
Hydrobius fuscipes	2	2.0
Limnebius sp.	2	2.0
Corixidae sp.	1	1.0
Colymbetes fuscus	1	1.0
Colymbetinae sp.	1	1.0
Anacaena sp.	1	1.0
?Laccobius sp.	1	1.0
Ochthebius ?bicolon	1	1.0
Ochthebius ?viridis	1	1.0
Elmidae sp.	1	1.0

ANN	n	% of NW
Total W	163	
Helophorus spp. (not below)	133	81.6
Helophorus aquaticus and grandis	7	4.3
Ochthebius spp.	7	4.3
Hydroporinae spp.	4	2.5
Hydrobius fuscipes	3	1.8
Corixidae sp.	2	1.2
Colymbetes fuscus	1	0.6
Dytiscidae sp.	1	0.6
Hydrophilinae sp.	1	0.6
Limnebius volckmari	1	0.6
Oulimnius sp.	1	0.6
Riolus sp.	1	0.6
?Riolus sp.	1	0.6

Table 25. Non-synanthropic decomposers (coded 'r' but not 's'), after removal of grain pests.

Site	N-G		'r', not 's'			N RT		'r', not 's' as % of NRT	
	all contexts	drains and gulleys		all contexts	drains and gulleys	all contexts	drains and gulleys	all contexts	drains and gulleys
Lanes 1	3641	359	N	808	70	1842	190	44	21
			%	22	19				
Lanes 2	5606	1363	N	1210	272	3027	656	40	41
			%	22	20				
Castle Street	3168	237	N	844	59	1982	137	43	43
			%	22	20				
Annetwell Street	6776	1254	N	1038	236	3975	690	26	34
			%	15	19				

Table 26. Ranked lists for RF taxa by site.

Lanes 1	n	% of NRF	Lanes 2	n	% of NRF	CST	n	% of NRF	ANN	n	% of NRF
Total RF	369		Total RF	548		Total RF	324		Total RF	372	
Aphodius spp. and spp. indet.	160	43.4	Aphodius spp. and spp. Indet.	126	23.0	Aphodius spp. and spp. indet.	78	24.1	Aphodius spp. and spp. indet.	173	46.5
Platystethus arenarius	83	22.5	Aphodius prodromus	103	18.8	Cercyon atricapillus	63	19.4	Platystethus arenarius	57	15.3
Aphodius prodromus	64	17.3	Platystethus arenarius	88	16.1	Aphodius prodromus	47	14.5	Cercyon haemorrhoidalis	29	7.8
Cercyon haemorrhoidalis	21	5.7	Cercyon atricapillus	58	10.6	Platystethus arenarius	43	13.3	Aphodius contaminatus	20	5.4
Cercyon atricapillus	15	4.1	Aphodius contaminatus	49	8.9	Cercyon terminatus	37	11.4	Aphodius prodromus	18	4.8
Geotrupes sp.	9	2.4	Cercyon haemorrhoidalis	43	7.8	Cercyon haemorrhoidalis	24	7.4	Cercyon terminatus	16	4.3
Cryptopleurum minutum	5	1.4	Aphodius granarius	18	3.3	Cercyon unipunctatus	8	2.5	Geotrupes sp.	12	3.2
Aphodius contaminatus	4	1.1	Cercyon unipunctatus	15	2.7	Cryptopleurum minutum	8	2.5	Cercyon atricapillus	10	2.7
Aphodius ?granarius	2	0.5	Cryptopleurum minutum	14	2.6	Aphodius ?contaminatus	4	1.2	Cryptopleurum minutum	8	2.2
Aphodius porcus	1	0.3	Cercyon terminatus	10	1.8	Aphodius ?granarius	4	1.2	Cercyon unipunctatus	6	1.6
Cercyon unipunctatus	1	0.3	Geotrupes sp.	10	1.8	Geotrupes sp.	2	0.6	Aphodius at er	5	1.3
Oxytelus laqueatus	1	0.3	Aphodius fimetarius	5	0.9	Sphaeridium lunatum/s carabaeoides	2	0.6	Aphodius granarius	8	2.2
Philonthus splendens	1	0.3	Sphaeridium sp.	5	0.9	Aphodius ?fimetarius	1	0.3	Sphaeridium sp.	2	0.5
Sphaeridium bipustulatum	1	0.3	Geotrupes spiniger	2	0.4	Aphodius at er	1	0.3	Aphodius fimetarius	2	0.5
Sphaeridium sp.	1	0.3	Cercyon ?quisquilius	1	0.2	Cercyon ?pygmaeus	1	0.3	Aphodius ?equestris	1	0.3
			Sphaeridium ?bipustulatum	1	0.2	Geotrupes spiniger	1	0.3	Aphodius or Colobopterus sp.	1	0.3
Total Aphodius	231	62.6						Aphodius rufipes	1	0.3	
			Total Aphodius	301	54.9			Onthophagus sp.	1	0.3	
								Sphaeridium bipustulatum	1	0.3	
								Sphaeridium lunatum/s carabaeoides	1	0.3	
								Total Aphodius	229	61.6	

Table 27. Beetles regarded as particularly typical of stable manure communities (none are exclusive to them).

Taxon	Lanes 1		Lanes 2		CST		ANN	
	n	% of NRT	n	% of NRT	n	% of NRT	n	% of NRT
Cercyon atricapillus	15	0.8	58	1.9	63	3.2	10	0.25
Cercyon terminatus	0	0.0	10	0.3	37	1.9	16	0.40
Acritus nigricornis	12	0.7	26	0.9	3	0.2	38	0.96
Acrotrichis sp.	13	0.7	27	0.9	333	16.8	42	1.06
Oxytelus sculptus	31	1.7	131	4.3	98	4.9	123	3.09
Carpelimus fuliginosus	0	0.0	59	1.9	6	0.3	2	0.05
Leptacinus spp.	15	0.8	32	1.1	17	0.9	48	1.21
Lithocharis ochraceus and sp.	2	0.1	8	0.3	2	0.1	5	0.13
Falagria spp.	56	3.0	93	3.1	15	0.8	33	0.83
Monotoma spp.	16	0.9	33	1.1	37	1.9	75	1.89
Anthicus spp. (mainly formicarius)	16	0.9	41	1.4	34	1.7	137	3.45
Total 'stable manure' individuals	176	9.6	518	17.1	645	32.5	529	13.31
NRT	1842		3027		1982		3975	
Total N-NG	3641		5606		3168		6776	
'Stable manure' as % N-NG	5		9		20		8	

Table 28. Number of sample assemblages where $N > 34$ for which 'stable manure' (SB) taxa account for 10% or more of the decomposer (RT) component, by site and feature type (A-B), and where SB taxa account for $> 10\%$ of N-NG, by site (C). Note that the taxa involved are typical of, but by no means confined to, stable manure habitats.

A. By feature

Site	feature type	number
ANN	?	4
ANN	drain	8
ANN	floor	4
ANN	gulley	2
ANN	layer	3
ANN	pit	8
CST	drain	1
CST	floor	3
CST	gulley	1
CST	layer	5
CST	pit	2

A. Continued.

Site	feature type	number
Lanes 1	drain	1
Lanes 1	gulley	1
Lanes 1	layer	6
Lanes 1	pit	1
Lanes 1	str	1
Lanes 2	gulley	4
Lanes 2	layer	2
Lanes 2	pit	12
Lanes 2	well	4

B. Whole sites

Site	Cases with %SB>10	Cases where N>35	% of cases with %SB>10
ANN	29	85	34
CST	7	29	24
Lanes 2	22	50	44
Lanes 1	10	40	25

C. As % of N-NG

Site	Cases with %SB>10	Cases where N>35	% of cases with %SB>10
ANN	8	85	9
CST	4	29	14
Lanes 2	11	50	22
Lanes 1	2	40	5

Table 29. Lanes 1. Breakdown of the synanthropic component. N - number of individuals; % - percentage of synanthropic component.

Feature		SA	SF	ST	SS	G	SS-G	SF	ST	SS	G	SF	ST	SS
All	N	2091	676	376	1039	989	50							
	%	45	15	8	22	21	1	32	18	50	47	61	34	5
pit	N	261	80	46	135	128	7							
	%	58	18	10	30	29	1	31	18	52	49	60	35	5
layer	N	970	415	192	363	338	25							
	%	36	15	7	13	12	1	43	20	37	35	66	30	4
drain, gully	N	594	55	61	478	469	9							
	%	72	7	7	58	57	1	9	10	80	79	44	49	7
floor	N	90	44	23	23	22	1							
	%	40	20	10	10	10	+	49	26	26	24	65	34	1
str	N	60	32	21	7	5	2							
	%	50	27	18	6	4	2	53	35	12	8	58	38	4
well	N	85	41	24	20	15	5							
	%	45	22	13	11	8	3	48	28	24	18	59	34	7
OGS	N	6	1	4	1	1	0							
	%	55	9	36	1	1	0	17	67	17	17	20	80	0

Table 30. Lanes 2. Breakdown of the synanthropic component. N - number of individuals; % - percentage of synanthropic component.

Feature		SA	SF	ST	SS	G	SS-G	SF	ST	SS	G	SF	ST	SS
All	N	4925	942	935	3048	2959	89							
	%	58	11	11	36	35	1	19	19	62	60	48	48	5
pit	N	1882	422	451	1009	984	25							
	%	50	11	12	27	26	1	22	24	54	52	47	50	3
layer	N	605	121	83	401	394	7							
	%	62	12	9	41	41	1	20	14	66	65	57	39	3
drain, gully	N	798	201	190	407	392	15							
	%	45	11	11	23	22	1	25	24	51	49	50	47	4
floor	N	0	0	0	0	0	0							
	%	0	0	0	0	0	0	0	0	0	0	0	0	0
str	N	0	0	0	0	0	0							
	%	0	0	0	0	0	0	0	0	0	0	0	0	0
well	N	1613	192	205	1216	1175	41							
	%	84	10	11	63	61	2	12	13	75	73	44	47	9
OGS	N	0	0	0	0	0	0							
	%	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 31. Castle Street. Breakdown of the synanthropic component. N - number of individuals; % - percentage of synanthropic component.

Feature		SA	SF	ST	SS	G	SS-G	SF	ST	SS	G	SF	ST	SS
All	N	3136	603	542	1991	1956	35							
	%	60	12	10	38	38	1	19	17	63	62	51	46	3
pit	N	190	49	33	108	104	4							
	%	45	14	10	32	31	1	26	17	57	55	57	38	5
layer	N	823	215	199	409	398	11							
	%	54	14	13	27	26	1	26	24	50	48	51	47	3
drain, gully	N	209	37	41	131	130	1							
	%	57	10	11	36	35	+	18	20	63	62	47	52	1
floor	N	1761	225	250	1286	1267	19							
	%	69	9	10	50	50	1	13	14	73	72	46	51	4
str	N	0	0	0	0	0	0							
	%	0	0	0	0	0	0	0	0	0	0	0	0	0
well	N	0	0	0	0	0	0							
	%	0	0	0	0	0	0	0	0	0	0	0	0	0
OGS	N	0	0	0	0	0	0							
	%	0	0	0	0	0	0	0	0	0	0	0	0	0
Turves	N	153	77	19	57	57	0							
	%	44	22	5	16	16	0	50	12	37	37	80	20	0

Table 32. Annetwell Street. Breakdown of the synanthropic component. N - number of individuals; % - percentage of synanthropic component.

Feature		numbers of individuals/%						as % SA				as % SA-G		
		SA	SF	ST	SS	G	SS-G	SF	ST	SS	G	SF	ST	SS
All	N	5220	1430	1458	2332	2196	136							
	%	58	16	16	26	24	2	27	28	45	42	47	48	4
pit	N	1639	394	383	862	838	24							
	%	64	15	15	34	33	1	24	23	53	51	49	48	3
layer	N	933	281	318	334	296	38							
	%	54	16	18	19	17	2	30	34	36	32	44	50	6
drain, gully	N	914	245	204	465	444	21							
	%	54	14	12	27	26	1	27	22	51	49	52	43	4
floor	N	782	231	229	322	300	22							
	%	60	18	18	25	23	2	30	29	41	38	48	48	5
str	N	83	30	25	28	24	4							
	%	56	20	17	19	16	3	36	30	34	29	51	42	7
well	N	0	0	0	0	0	0							
	%	0	0	0	0	0	0	0	0	0	0	0	0	0
OGS	N	0	0	0	0	0	0							
	%	0	0	0	0	0	0	0	0	0	0	0	0	0
dump	N	16	5	3	8	6	2							
	%	27	8	5	13	10	3	31	19	50	38	50	30	20

Table 33. Summary breakdown of synanthropic component by site.

Site	Number of individuals						as % SA				as % SA-G		
	SA	SF	ST	SS	G	SS-G	SF	ST	SS	G	SF	ST	SS
Lanes 1	2091	676	376	1039	989	50	32	18	50	47	61	34	5
Lanes 2	4925	942	935	3048	2959	89	19	19	62	60	48	48	5
CST	3136	603	542	1991	1956	35	19	17	63	62	51	46	3
ANN	5220	1430	1458	2332	2196	136	27	28	45	42	47	48	4

Table 34. House fauna: ranked lists by site and total number of individuals, with percentages within house component. *Crataraea suturalis* may have been overlooked at Castle Street. Data for *Anobium punctatum* as percentage of site N appended.

Lanes 1	N	%
Lathridius minutus group	177	36
Cryptophagus spp.	138	28
Anobium punctatum	65	13
Ptinus fur + sp.	50	10
Xylodromus concinnus	31	6
Cryptophagus scutellatus	22	4
Tenebrio obscurus	6	1
Lyctus linearis	3	1
Tipnus unicolor	2	1
Total	494	
Percentage of site N-G	14	

Lanes 2	N	%
Lathridius minutus group	289	42
Cryptophagus spp.	128	19
Anobium punctatum	82	12
Ptinus fur + sp.	56	8
Xylodromus concinnus	49	7
Cryptophagus scutellatus	25	4
Tipnus unicolor	18	5
Tenebrio obscurus	6	1
Laemostenus terricola	4	1
Crataraea suturalis	4	1
Blaps sp.	3	+
Atomaria nigripennis	3	+
Lyctus linearis	1	+
Mycetaea hirta	1	+
Total	699	
Percentage of site N-G	12	

CST	N	%
Lathridius minutus group	139	34
Cryptophagus spp.	108	27
Xylodromus concinnus	72	18
Anobium punctatum	35	9
Ptinus fur + sp.	35	9
Tenebrio obscurus	7	2
Cryptophagus scutellatus	5	1
Laemostenus terricola	3	1
Lyctus linearis	1	+
Blaps sp.	1	+
Leperisinus varius	1	+
Total	407	
Percentage of site N-G	13	

ANN	N	%
Lathridius minutus group	654	44
Cryptophagus spp.	364	25
Xylodromus concinnus	169	11
Ptinus fur + sp.	112	8
Cryptophagus scutellatus	82	6
Anobium punctatum	50	3
Crataraea suturalis	23	2
Lyctus linearis	23	2
Laemostenus terricola	10	1
Tenebrio obscurus	3	+
Mycetaea hirta	2	+
Total	1493	
Percentage of site N-G	22	

Anobium punctatum as percentage of site N

Site	%
ANN	0.56
CST	0.68
Lanes 2	1.77
Lanes 1	0.76

Table 35. Numbers of samples where 'house' (H) taxa account for more than 20% of the adult beetles and bugs, by site and feature type. Note that the taxa involved are typical of, but not confined to, indoor habitats.

A. By feature type

Site	Feature type	Number of samples
ANN	?	9
ANN	drain	3
ANN	floor	8
ANN	gully	2
ANN	layer	6
ANN	pit	15
ANN	str	2
CST	floor	7
CST	layer	3
CST	pit	1

A. continued.

Site	Feature type	Number of samples
Lanes 1	floor	3
Lanes 1	gully	1
Lanes 1	layer	4
Lanes 1	pit	1
Lanes 1	str	1
Lanes 2	gully	1
Lanes 2	layer	2
Lanes 2	pit	2
Lanes 2	well	4

B. By site.

Site	Cases with % H>10	Cases where N>35	% of cases with %H>10
Ann	45	85	53
CST	10	29	34
Lanes 2	9	50	18
Lanes 1	9	40	23

Table 36. Percentages of grain pests by site.

	Site N	Site NG		S. granarius	O. surinamensis	C. ferrugineus	P. ratzeburgi
Lanes 1	4360	989	N	71	574	295	49
			% site N	1.6	13.2	6.8	1.1
			% site NG	7.2	58.0	29.8	5.0
Lanes 2	8565	2959	N	185	1572	997	205
			% site N	2.2	18.4	11.6	2.4
			% site NG	6.3	53.1	33.7	6.9
CST	5124	1956	N	160	1069	614	108
			% site N	3.1	20.9	12.0	2.1
			% site NG	8.2	54.7	31.4	5.5
ANN	8972	2196	N	331	827	898	140
			% site N	3.7	9.2	10.0	1.6
			% site NG	15.1	37.7	40.9	6.4

Table 37. Significance of variations in proportions of grain pests. Significance: ** - $p < 0.01$; * - $p < 0.05$ (chi square = > 11.34 and 7.81 respectively, with three degrees of freedom). Obs - observed; exp - expected.

	<i>S. granarius</i>		rest of grain pests		S. gran chi	rest chi	sum chi	sign
	obs	exp	obs	exp				
Lanes 1	71	91.21	918.00	897.18	4.477	0.483	4.96	-
Lanes 2	185	272.89	2774.00	2684.29	28.304	2.998	**31.302	-
CST	160	180.39	1791.00	1774.41	2.304	0.155	2.459	-
ANN	331	202.52	1865.00	1992.12	81.509	8.112	**89.620	+
	<i>O. surinamensis</i>		rest of grain pests		O. sur chi	rest chi	sum chi	sign
	obs	exp	obs	exp				
Lanes 1	574	493.5232	415	494.87	13.123	12.89	**26.012	+
Lanes 2	1572	1476.578	1387	1480.60	6.167	5.917	**12.083	+
CST	1069	976.0681	882	978.72	8.848	9.559	**18.407	+
ANN	827	1095.831	1369	1098.81	65.95	66.436	**132.386	-
	<i>C. ferrugineus</i>		rest of grain pests		C. ferr chi	rest chi	sum chi	sign
	obs	exp	obs	exp				
Lanes 1	295	342.36	694	646.02	6.553	3.563	*10.116	-
Lanes 2	997	1024.33	1962	1932.85	0.729	0.44	1.169	-
CST	614	677.11	1337	1277.68	5.883	2.754	*8.637	-
ANN	898	760.20	1298	1434.45	24.98	12.979	**37.960	+
	<i>P. ratzeburgi</i>		rest of grain pests		P. ratz chi	rest chi	sum chi	sign
	obs	exp	obs	exp				
Lanes 1	49	61.29	940	927.10	2.466	0.18	2.645	-
Lanes 2	205	183.38	2754	2773.79	2.548	0.141	2.689	+
CST	108	121.22	1843	1833.57	1.443	0.049	1.491	-
ANN	140	136.10	2056	2058.55	0.112	0.003	0.115	+

Table 38. (a) Spearman's rank correlation coefficients and their significance for the four grain pests at the four sites; (b) correlations in rank order for each site (1 - highest; 6 - lowest). ** - $p < 0.01$; * - $p < 0.05$. Key: CF - *Cryptolestes ferrugineus*; OS - *Oryzaephilus surinamensis*; PR - *Palorus razeburgi*; SG - *Sitophilus granarius*.

(a)

Site	CF-OS	CF-PR	CF-SG	OS-PR	OS-SG	PR-SG
Lanes 1	0.541**	0.431**	0.576**	0.467**	0.397**	0.385*
Lanes 2	0.838**	0.684**	0.417**	0.643**	0.214-	0.285*
CST	0.277-	0.239-	0.570**	0.427**	0.226-	0.362*
ANN	0.810**	0.549**	0.468**	0.453**	0.379**	0.455**

(b)

Site	1	2	3	4	5	6
Lanes 1	CF-SG**	CF-OS**	OS-PR**	CF-PR**	OS-SG**	PR-SG**
Lanes 2	CF-OS**	CF-PR**	OS-PR**	CF-SG**	PR-SG*	OS-SG-
CST	CF-SG**	OS-PR**	PR-SG*	CF-OS-	CF-PR-	OS-SG-
ANN	CF-OS**	CF-PR**	CF-SG**	PR-SG**	OS-PR**	OS-SG**

Table 39. Sample assemblages where N>34 and percentage of grain pests exceeds 50%.

A. By feature type.

Site	Feature type	N	NG	PNG
ANN	?	51	48	94
ANN	pit	301	274	91
ANN	pit	45	34	76
ANN	pit	43	31	72
ANN	pit	47	33	70
ANN	pit	138	90	65
ANN	pit	90	51	57
ANN	layer	59	33	56
ANN	drain	80	42	53
CST	floor	247	228	92
CST	floor	141	123	87
CST	floor	490	378	77
CST	layer	139	75	54
CST	pit	77	41	53

A. Continued.

Site	Feature type	N	NG	PNG
LANES 1	gully	478	408	85
LANES 1	layer	67	51	76
LANES 2	pit	55	44	80
LANES 2	well	225	159	71
LANES 2	well	610	427	70
LANES 2	well	516	359	70
LANES 2	pit	87	59	68
LANES 2	well	107	71	66
LANES 2	layer	319	209	66
LANES 2	pit	230	145	63
LANES 2	pit	335	188	56

B. By site.

Site	PNG>50	N>35	Percentage with PNG>50
ANN	9	85	22
CST	5	29	17
Lanes 2	9	50	18
Lanes 1	2	40	5

Table 40. *Phytophages in layers by site.*

Lanes 1				Lanes 2	
Phyllopertha horticola	34	Trioza urticae	2	Apion spp.	8
Auchenorhyncha spp.	30	Byrrhidae sp.	2	Phyllopertha horticola	5
Longitarsus spp.	21	Sitona ?lepidus	2	Phyllotreta nemorum group	4
Apion spp.	20	Sitona regensteiniensis	2	Auchenorhyncha spp.	7
Meligethes spp.	17	Notaris acridulus	2	Meligethes sp.	3
Halticinae spp.	15	Pachybrachius fracticollis	1	Anthocoris sp.	2
Micrelus ericae	10	Drymus sp.	1	Longitarsus sp.	2
Gastrophysa viridula	8	Miridae sp.	1	Halticinae sp.	2
Macrodera micropterum	7	Strophingia ericae	1	Scolopostethus sp.	1
Ulopa reticulata	7	Melolonthinae/Rutelinae/Cetoniae sp.	1	Lygaeidae sp.	1
Sitona spp.	7	?Ctenicera cuprea	1	Aphrodes sp.	1
Chrysomelinae sp.	6	Phalacridae sp.	1	Delphacidae sp.	1
Ceutorhynchinae sp.	6	Donaciinae sp.	1	Simplocaria ?semistriata	1
Phyllotreta nemorum group	5	Chrysolina sp.	1	Gastrophysa ?polygona	1
Stygnocoris pedestris	4	Hydrothassa sp.	1	Gastrophysa viridula	1
Lygaeidae sp.	4	Crepidodera sp.	1	?Gastrophysa sp.	1
Brachypterus sp.	4	Chaetocnema arida group	1	?Hydrothassa sp.	1
Phyllotreta sp.	4	Chaetocnema ?concinna	1	Chrysomelinae sp.	1
Altica sp.	4	?Chaetocnema sp.	1	Galerucella sp.	1
Chaetocnema concinna	4	?Psylliodes sp.	1	Galerucinae sp.	1
Scolopostethus sp.	3	Apion (Oxystoma) subulatum	1	Phyllotreta ?nemorum group	1
Conomelus anceps	3	Sitona lepidus	1	Crepidodera sp.	2
Psylloidea sp.	3	Hypera nigrirostris	1	?Chaetocnema concinna	1
Ctenicera cuprea	3	Hypera sp.	1	Sitona ?lepidus	1
Dorytomus sp.	3	Cidnorhinus quadrimaculatus	1	Ceutorhynchus sp.	1
Gymnetron sp.	3	Ceutorhynchus sp.	1	Gymnetron sp.	1
Mecinus pyrastri	3	Rhinoncus pericarpus	1		
?Berytinus sp.	2	Limnobaris pilistriata	1		

Table 40 continued.

CST	
Halticinae spp.	12
Auchenorhyncha sp.	10
Sitona spp.	7
Apion spp.	5
Melolonthinae/Rutelinae/Cetoninae sp.	3
Meligethes spp.	5
Phyllopertha horticola	3
Simplocaria ?semistriata	3
Phyllotreta nemorum group	3
Ceutorhynchus sp.	3
Fulgoromorpha sp.	2
Melolonthinae sp.	2
Phyllotreta sp.	2
Phyllobius or Polydrusus sp.	2
Lygaeidae sp.	1
Lema or Oulema sp.	1
Gastrophysa viridula	1
Phytodecta sp.	1
Chrysomelinae sp.	1
?Phyllobius sp.	1
Barynotus sp.	1
Sitona hispidulus	1
Sitona ?lineatus	1
?Gymnetron sp.	1

ANN	
Apion spp.	20
Auchenorhyncha spp.	16
Meligethes spp.	12
Longitarsus spp.	10
Halticinae spp.	10
Phyllotreta nemorum group	7
Chrysomelinae sp.	4
Lygaeidae sp.	3
Apion (Oxystoma) craccae	3
Sitona sp.	3
Ceutorhynchus sp.	3
Berytinus sp.	2
Melolontha sp.	2
Phyllopertha horticola	2
Agriotes sp. indet.	2
Ceutorhynchus ?contractus	2
Rhinoncus sp.	2
Ceuthorhynchinae spp.	2
Stygnocoris pedestris	1
?Lygocoris sp.	1
Conomelus anceps	1
Melolonthinae/Rutelinae/Cetoninae sp.	1
Byrrhidae sp.	1
Agriotes ?obscurus	1
?Agriotes sp.	1
Brachypterus sp.	1
Anisosticta novemdecimpunctata	1
Chrysolina polita	1

Gastrophysa viridula	1
?Galerucella sp.	1
Phyllotreta sp.	1
Chaetocnema concinna	1
Chaetocnema or Psylliodes sp.	1
Strophosomus ?melanogrammus	1
?Strophosomus sp.	1
Barynotus sp.	1
Sitona hispidulus	1
Hypera sp.	1
Notaris sp.	1
Curculio (Balanobius) sp.	1
Gymnetron ?pascuorum	1
Gymnetron sp.	1

Table 41. List of taxa used in the species association analyses, their abbreviations, and number of samples where sample N > 34. Nomenclature follows Kloet & Hincks (1964-77). Key: x - ten or more records included in the analysis for that site.

	Lanes 1	Lanes 2	CST	ANN	
Number of samples where N > 34	41	52	29	88	
Abbreviation					Taxon
ACOMP					<i>Anotylus complanatus</i> (Erichson)
ACRO		x	x	x	<i>Acrotrichis</i> spp.
AGLEN		x			<i>Aglenus brunneus</i> (Gyllenhal)
AGRAN		x			<i>Aphodius granarius</i> (Linnaeus)
ALEOCHX					<i>Crataraea suturalis</i> (Mannerheim)
ANIG		x		x	<i>Acritus nigricornis</i> (Hoffmann)
ANIT	x	x	x	x	<i>Anotylus nitidulus</i> (Gravenhorst)
ANTHIC	x	x	x	x	<i>Anthicus formicarius</i> (Goeze) and/or <i>floralis</i> (Linnaeus) (almost entirely the former)
APHOD	x	x	x	x	<i>Aphodius</i> spp., other than probable or certain material of <i>A. granarius</i>
APION	x	x	x	x	<i>Apion</i> spp., excluding probable or certain material of <i>A. difficile</i>
APROD		x			<i>Aphodius prodromus</i> (Brahm)
APUNCT	x	x	x	x	<i>Anobium punctatum</i> (Degeer), <i>Anobium</i> sp. (almost certainly all <i>punctatum</i>)
ARUG	x	x	x	x	<i>Anotylus rugosus</i> (Fabricius)
ATETRA	x	x	x	x	<i>Anotylus tetracarinatus</i> (Block)
ATOM	x	x	x	x	<i>Atomaria</i> spp. other than probable or certain <i>A. nigripennis</i>
ATOMNIG					<i>Atomaria nigripennis</i> (Kugelann)
BLAPS					<i>Blaps</i> spp.
BRACHYPT					<i>Brachypterus</i> spp.

	Lanes 1	Lanes 2	CST	ANN	
BRUCHUS					<i>Bruchus</i> sp. (most are probably <i>B. rufimanus</i> Boheman)
CANAL	x	x	x	x	<i>Cercyon analis</i> (Paykull)
CATOPS				x	<i>Catops</i> spp.
CATRIC		x	x		<i>Cercyon atricapillus</i> (Marshall)
CBIL	x	x	x	x	<i>Carpelimus bilineatus</i> Stephens [perhaps including a small number of <i>C. rivularis</i> (Motschulsky)]
CCONT					<i>Ceutorhynchus contractus</i> (Marshall)
CFERR	x	x	x	x	<i>Cryptolestes ferrugineus</i> (Stephens)
CFOSSOR		x		x	<i>Clivina fossor</i> (Linnaeus) and <i>C. sp.</i> [not <i>collaris</i> (Herbst)]
CFULIG					<i>Carpelimus fuliginosus</i> (Gravenhorst)
CHAEM	x	x	x	x	<i>Cercyon haemorrhoidalis</i> (Fabricius)
CHAETCON					<i>Chaetocnema concinna</i> (Marshall)
CIDQUAD					<i>Cidnorhinus quadrimaculatus</i> (Linnaeus)
CLADO		x			Cladocera spp. (including <i>Daphnia</i> and <i>Ceriodaphnia</i> spp. and unidentified additional taxa)
CLAMBUS					<i>Clambus</i> spp. (a large proportion probably <i>C. pubescens</i> Redtenbacher)
CMIN		x			<i>Cryptopleurum minutum</i> (Fabricius)
COBS	x	x		x	<i>Cordalia obscura</i> (Gravenhorst)
CORT	x	x	x	x	<i>Corticaria</i> spp. (several species present in the material)
CPUSGP			x	x	<i>Carpelimus pusillus</i> group (probably mostly <i>C. pusillus</i> [Gravenhorst])
CRYPTO	x	x	x	x	<i>Cryptophagus</i> spp. (not <i>C. scutellatus</i>)
CSCUT	x	x		x	<i>Cryptophagus scutellatus</i> Newman
CSTRIAT					<i>Coprophilus striatulus</i> (Fabricius)
CTERM			x		<i>Cercyon terminatus</i> (Marshall)

	Lanes 1	Lanes 2	CST	ANN	
CUNIP		x			<i>Cercyon unipunctatus</i> (Linnaeus)
DAMOV					<i>Damalinea ovis</i> (Schrank) (including <i>D. sp.</i> , probably <i>ovis</i>)
EGLOB	x	x	x	x	<i>Ephistemus globulus</i> (Paykull)
ENIC		x	x		<i>Enicmus</i> sp.
EUPLECT					Euplectini sp?p. (probably all <i>Euplectus</i>)
FAL	x	x	x	x	<i>Falagria</i> sp. (probably all <i>F. caesa</i> Erichson)
GEOTRUP				x	<i>Geotrupes</i> sp?p.
GRACMIN					<i>Gracilia minuta</i> (Fabricius)
GYRO	x	x	x	x	<i>Gyrophypnus</i> spp. (<i>G. angustatus</i> Stephens and <i>G. fracticornis</i> (Müller) both frequently recorded)
HELOPH	x	x	x	x	<i>Helophorus</i> spp. (aquatic forms only, several species present)
HISTER		x	x	x	<i>Hister</i> spp. in the broad sense; <i>H. merdarius</i> Hoffmann probably much the most abundant
HURT					<i>Heterogaster urticae</i> (Fabricius)
KATER					<i>Kateretes</i> spp. [<i>rufilabris</i> (Latreille) positively identified]
LAEMTERR					<i>Laemostenus terricola</i> (Herbst) and <i>L. sp.</i> (almost certainly all <i>terricola</i>)
LCAMP			x	x	<i>Lycocoris campestris</i> (Fabricius)
LEPTA	x	x	x	x	<i>Leptacinus</i> spp.
LEPVAR					<i>Leperisinus varius</i> (Fabricius)
LITHOC					<i>Lithocharis ochraceus</i> (Gravenhost)
LMINGP	x	x	x	x	<i>Lathridius minutus</i> group [probably all or nearly all <i>L. pseudominutus</i> (Strand)]
LYCTLIN				x	<i>Lyctus linearis</i> (Goeze)
MELIG	x	x	x	x	<i>Meligethes</i> spp. (several species present)
MELOV					<i>Melophagus ovinus</i> (Linnaeus)

	Lanes 1	Lanes 2	CST	ANN	
MHIRT					<i>Mycetaea hirta</i> (Marshall)
MLONGI				x	<i>Monotoma longicollis</i> (Gyllenhal)
MOBS	x	x	x	x	<i>Megasternum obscurum</i> (Marshall)
MONOT		x	x	x	<i>Monotoma</i> spp. [not <i>M. longicollis</i> but perhaps including non-diagnostic parts of <i>M. picipes</i>]
MPICIPES					<i>Monotoma picipes</i> Herbst
NEOB	x	x		x	<i>Neobisnius</i> sp. [probably all <i>N. villosulus</i> (Stephens)]
OCHTHEB	x	x			<i>Ochthebius</i> spp. [mostly <i>O. minimus</i> (Fabricius) but at least one other species present]
OMALCI		x	x	x	<i>Omalium caesum</i> Gravenhorst or <i>italicum</i> Bernhauer
OMOSITA		x			<i>Omosita</i> spp. [both <i>O. colon</i> (Linnaeus) and <i>O. discoidea</i> (Fabricius) frequently recorded]
ORIV		x	x	x	<i>Omalium rivulare</i> (Paykull)
OSCULPT	x	x	x	x	<i>Oxytelus sculptus</i> Gravenhorst
OSUR	x	x	x	x	<i>Oryzaephilus surinamensis</i> (Linnaeus)
OSYLV					<i>Oxyomus sylvestris</i> (Scopoli)
PAREN	x	x	x	x	<i>Platystethus arenarius</i> Thomson
PATRO					<i>Patrobus</i> sp. [probably all <i>P. atrorufus</i> (Ström)]
PCORNGP					<i>Platystethus cornutus</i> group (probably all <i>P. degener</i> Mulsant and Rey)
PEDHUM					<i>Pediculus humanus</i> Linnaeus
PHORT	x	x		x	<i>Phyllopertha horticola</i> (Linnaeus)
PHYLLFLO					<i>Phyllodrepa floralis</i> group [probably all <i>P. floralis</i> (Paykull)]
PHYMALNI					<i>Phymatodes alni</i> (Linnaeus)
PMEL		x			<i>Pterosticus melanarius</i> (Illiger)
PNEMGP		x	x	x	<i>Phyllotreta nemorum</i> group [probably <i>P. nemorum</i> (Linnaeus) and/or <i>undulata</i> Kutschera]

	Lanes 1	Lanes 2	CST	ANN	
PNIT		x			<i>Platystethus nitens</i> (Sahlberg)
PRATZ	x	x	x	x	<i>Palorus ratzeburgi</i> (Wissman)
PTEN		x	x	x	<i>Ptenidium</i> spp. (probably mostly <i>P. pusillum</i> (Gyllenhal))
PTINUS	x	x	x	x	<i>Ptinus</i> sp. [probably almost all <i>P. fur</i> (Linnaeus)]
PULEX					<i>Pulex irritans</i> Linnaeus
RPARALL					<i>Rhizophagus paralellocollis</i> Gyllenhal
SGRAN	x	x	x	x	<i>Sitophilus granarius</i> (Linnaeus)
SITONA	x	x	x	x	<i>Sitona</i> spp. (several)
STENUS	x	x	x	x	<i>Stenus</i> spp. (several)
TACHIN	x	x	x		<i>Tachinus</i> spp. (several)
TACHY	x	x	x	x	<i>Tachyporus</i> spp. (several)
TMICROS					<i>Trechus micros</i> (Herbst)
TOBS					<i>Tenebrio obscurus</i> Fabricius
TQORO	x	x	x	x	<i>Trechus obtusus</i> Erichson and <i>quadristriatus</i> (Schrank)
TSCAB					<i>Trox scaber</i> (Linnaeus)
TSTERC	x	x	x	x	<i>Typhaea stercorea</i> (Linnaeus)
TSULC					<i>Trichonyx sulcicollis</i> (Reichenbach)
TUNIC					<i>Tipnus unicolor</i> (Piller and Mitterpacher)
XCONC	x	x	x	x	<i>Xylodromus concinnus</i> (Marshall) [may include a few <i>X. depressus</i> (Gravenhorst)].

Table 42. Assemblages where N>34 and %NW greater than 5% and 10%, by feature type and site.

A. More than 5% NW, by feature type.

drain	ANN	1
dump	ANN	1
layer	ANN	2
pit	ANN	1
layer	CST	2
?	Lanes 1	1
floor	Lanes 1	1
gully	Lanes 1	1
layer	Lanes 1	11
pit	Lanes 1	2
well	Lanes 1	1
gully	Lanes 2	6
layer	Lanes 2	2
pit	Lanes 2	11

B. More than 5% NW, by site.

Site	Cases with %NW>5	Cases where N>35	% of cases where %NW>5
ANN	5	85	6
CST	2	29	7
Lanes 1	17	50	34
Lanes 2	19	40	48

C. More than 10% NW, by feature type.

layer	ANN	2
?	Lanes 1	1
pit	Lanes 1	1
gully	Lanes 2	4

D. More than 10% NW, by site.

Site	Cases with %NW>5	Cases where N>35	% of cases where %NW>5
ANN	2	85	2
CST	0	29	0
Lanes 1	2	50	4
Lanes 2	4	40	10