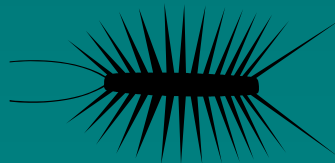
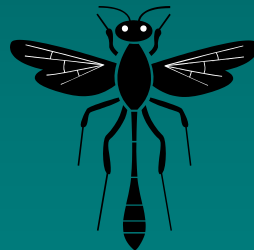
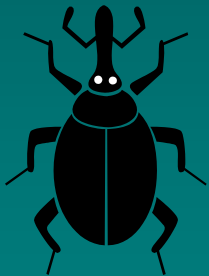
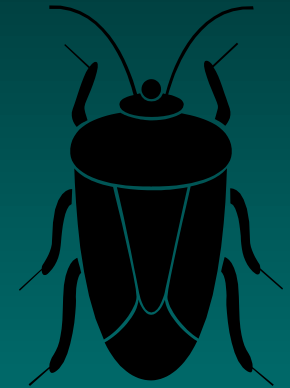
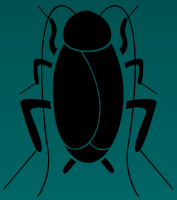


Forest Check Invertebrates

Report spring 2001 -
autumn 2002

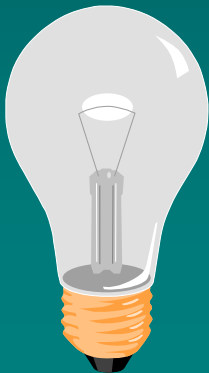


Aim

Efficient and Effective sampling

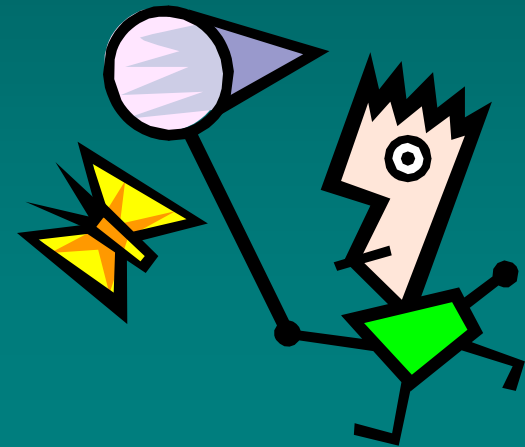
PASSIVE

- Pit fall traps
- Light traps



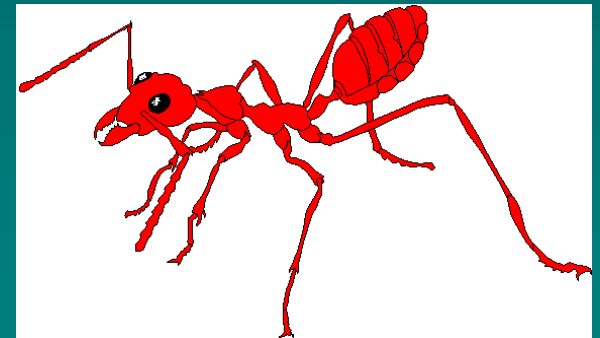
ACTIVE

- Beating
- Sweeping
- Habitat searches



Habitat Searches

- Litter
- Coarse woody debris
- Moss Swards
- Ash beds
- Lower tree boles



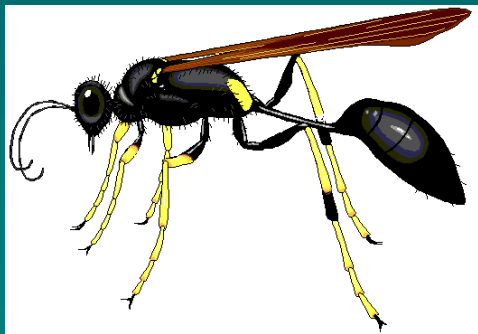
Beating and Sweeping

- One hour was given to each technique
- On cool spring mornings sweep later in day



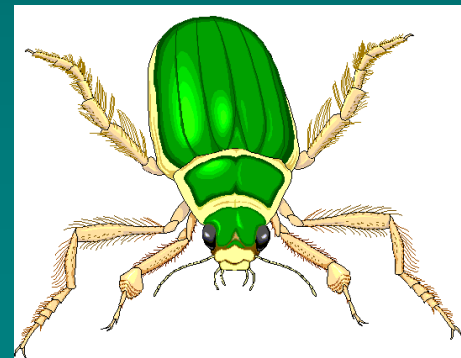
Pit fall

- Sites trapped simultaneously
- 10 traps per site
- Open for 10 days



& Light traps

- Active sunset to sunrise
- Sites trapped simultaneously
- 3 trapping nights per sample season



Specimen Processing

- Size threshold 10 mm
- GR & GA, no size limit
- Indicators > 10mm and distinctive



Data Base Establishment Problems

- Morpho species no. assignment
- Species duplication



Table 1 Number of morphospecies collected using active and passive capture techniques in spring-autumn 2001-2002

Order	No of Spec	GR	GA	K
Coleoptera	111	3	6	28
Lepidoptera	209		2	99
Total	588	24	33	203

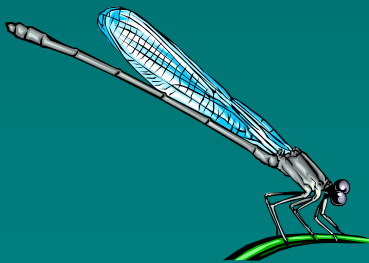


Table 2 Number of morphospecies and specimen abundance in spring and autumn for each capture method (CWD = coarse woody debris search; na = not available).

Capture Method	<u>No of Morpho Species</u>		<u>Abundance</u>	
	Spring	Autumn	Spring	Autumn
Light	168	144	1511	1264
Pitfall	84	45	na	na
Sweep	78	27	150	60
Beat	77	18	119	59
CWD	24	29	50	78
Litter	36	24	72	32



Table 3 Number of morpho species (diversity) captured at each site for active light and pit fall capture techniques in spring and autumn.

Site	Treatment	<u>Active capture</u>		<u>Light trap</u>		<u>Pit fall</u>	
		Sp	Au	Sp	Au	Sp	Au
M1	Control	13	8	59	54	30	9
M2	Gap	12	14	56	55	25	15
M3	Shelter	25	16	43	74	16	11
M4	Buffer	9	15	62	77	11	9
M5	Control	47	17	71	40	11	9
M6	Gap	29	17	66	52	15	8
M7	Buffer	27	23	84	57	23	5
M8	Gap	44	12	49	40	15	10
M9	Buffer	50	18	51	58	11	7
M10	Control	43	23	52	24	15	9

Table 5 Pest presence and abundance assessment at each site (JLM = jarrah leafminer; GLS = gumleaf skeletoniser; BEB = bullseye borer; 0 = absent, 1 = present, 2 = abundant).

Site	JLM	GLS	BEB
M1	2	0	1
M2	2	0	1
M3	1	0	1
M4	2	0	1
M5	1	0	1
M6	1	0	1
M7	1	0	1
M8	1	0	0
M9	1	0	1
M10	1	0	1

Table 6 Comparison of collection methods using collection efficiencies.

Collection method	Trap efficiency (individuals per collection hour)	Process efficiency (individuals per person hour)
Spring		
Light	4.2	10.1
Pitfall	0.35	0.56
Sweep	15.0	Rain disruption
Beat	11.9	See as for sweep above
CWD	5.0	See above
Litter	7.2	See above
Autumn		
Light	3.5	8.4
Pitfall	0.19	0.38
Sweep	6.0	0.95 (comb active meth)
Beat	5.9	See above
CWD	7.8	See above
Litter	3.2	See above

Collection method Comparisons

Collection Method	Disadvantages	Advantages
Light	Light attracted fauna.	High capture rate. High process efficiency
Pitfall	Bias to most active ground fauna Low process and cap. efficiency	High faunal fidelity to site Ability to catch new species
Sweep	Capture efficiency affected by air temp etc. Low process efficiency.	Good catch efficiency in good conditions
Beat	Low process efficiency Upper canopy not sampled	Good catch efficiency Less affected by tem & rain than sweep
CWD	Low process efficiency	Good catch efficiency. Relatively unaffected by air temp etc High Faunal fidelity to site
Litter	Low process efficiency	Good catch efficiency Relatively unaffected by air temp etc.

Future tasks

- All samples processed and data entered
- Data base structure refined
- Problems with morphospecies assignment to be sorted
- Morphospecies master list will need continual revision

