THE BEETLES OF BINSTED WOODS

A REPORT BY

DR. KATHERINE GROVE

NOVEMBER 2006

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CONTENTS

Actual size of beetles in pictures denoted by I

Coleopteran Species List for Binsted Woods 2005-2006

Key

Species Name	Where	Map ref.	How	When
Nomenclature from Lucht, W. H. (1987) *Die Käfer Mitteleuropas*, Katalog, Goecke and Evers, Krefeld	1 Tortington Common	SU002068	B = Beaten from trees	April - March = April 05 to March 06
	2 Binsted Wood	SU994069	C = Captured by hand	
	3 Bank by wood	SU995069	CF = Caught on flowers	
	4 Old Scotland Lane by Binsted Wood	SU995069	N = In artificial nest	
	5 Teasel clearing	SU001068	PT = Pitfall trap	
	6 Road verge Tortington Common		OET = Owen Emergence Trap	
	7 Cottage clearing	SU997067	S = Sweeping	
	8 Artificial nests in trees			

For frequently occurring species only main place and period(s) of occurrence noted.

RDB Status

RDB = Red Data Book see SHIRT (1987) British Red Data Books: Insects. N.C.C. Peterborough
RDB3 (RARE) = Occur in 15 or fewer 10km grid squares, or occupy small areas of especially vulnerable habitat.
NA (SCARCE) = Occur in fewer than 30 10km grid squares
NB (SCARCE) = Occur in between 31 – 100 10km grid squares
N (SCARCE) = Occur in between 16-100 10km grid squares (not separated into NA or NB)
RDB (ENDEMIC) = Species which are not known to occur outside Britain

Species Name	Where	How	Frequency	When	Status
CARABIDAE					
Cicindela campestris L.	Path by Paynes Wood	C	2-5	May	
Carabus violaceus L.	1 and 2	PT	2-5	July, Aug	
Carabus problematicus Hbst.	2 (mainly)	PT	21-100	July-Sept	
Carabus nemoralis Müll.	2 all sites	PT	2-5	April, May, Aug, Oct	
Cychrus caraboides (L.)	2 (mainly)	PT	6-20	Aug, Sept	
Leistus rufomarginatus Duft.	1 and 2	PT	6-20	Dec, Jan	
Leistus fulvibarbis Dej.	1, 2, 3, 4	PT	6-20	Oct	
Leistus ferrugineus (L.)	3, 4	PT	6-20	Oct, Nov	
Nebria brevicollis (F.)	1 (mainly)	PT	Over 100	May, Sept, Oct	
Notiophilus substriatus Water.	2, 3	PT	2-5	July, March	
Notiophilus biguttatus (F.)	1 (mainly)	PT	21-100	May, June	
Loricera pilicornis (F.)	1, 2, 3, 4	PT	6-20	June, July	
Bembidion lampros (Hbst.)	1 (mainly)	PT	6-20	May, June	
Bembidion quadrimaculatum (L.)	3	PT	2-5	June	
Bembidion obtusum Serv.	2	PT	2-5	Dec	
Bembidion guttula (F.).	1, 4 (mainly)	PT	Over 100	May, June	
Asaphidion flavipes (L.)	1, 4	PT	2-5	May, Nov	
Harpalus rufipes Deg.	1	PT	1	May	
Harpalus latus (L.)	3	PT	2-5	July	
Bradycellus sharpi Joy	2, 4	PT	2-5	May, Nov, Dec	
Acupalpus brunnipes (Strm.)	7	S	1	July	
Acupalpus dubius Schil.	1 (mainly)	PT	2-5	May -July	
Stomis pumicatus (Panz.)	3	PT	2-5	June, July	
Pterostichus (Poecilus) cupreus (L.)	1	PT	1	Sept	
Pterostichus strenuus (Panz.)	1, 3	PT	6-20	April-June	
Pterostichus madidus (F.)	1, 2, 3, 4	PT	Over 100	April-Oct	
Pterostichus nigrita Payk.	3	PT	2-5	May	

Abax parallelepipedus Pill. & Mitt.	2 (mainly)	PT	Over 100	April-Sept
Calathus piceus (Marsh.)	2	PT	1	Oct
Agonum obscurum (Hbst.)	4	PT	2-5	July
Agonum dorsale (Pont.)	4	PT,S	2-5	May, June
Amara aenea (Deg.)	1	PT	1	June
Badister bullatus (Schr.).	2,3	PT	2-5	May, July
Demetrias atricapillus (L.)	5	S	1	June
Dromius linearis (Ol.)	4 and birch	B,S	6-20	June
DYTISCIDAE				
Agabus guttatus (Payk.)?	4	PT	1	May
Agabus didymus (Ol.)	3	PT	1	July
HYDROPHILIDAE				
Helophorus grandis Ill.	2	PT	1	Aug
Helophorus aquaticus L.	6, in puddle	C	1	June
Helophorus brevipalpis Bed.	3	PT	2-5	Oct
Cercyon haemorrhoidalis (F.)	4	PT,S	2-5	June, July
Megasternum boletophagum Marsh.	4 (mainly)	PT	6-20	Aug, Sept
Anacaena globulus (Payk.)	4,3	PT	6-20	June, July Sept
HISTERIDAE				
Gnathoncus nanus (Scrib.)	8	N	1	June
Saprinus semistriatus (Scrib.)	8	N	1	June
Carcinops pumilio (Aube)	2	PT	1	Oct
Hister merdarius Hoff.	8	N	2-5	June
SIPHIDAE				
Nicrophorus humator (Gled.)	4	PT	1	July
Nicrophorus vespilloides Hbst.	1,2,3,4,8	PT,N	21-100	July, Aug
Oiceoptoma thoracicum (L.)	4	PT	1	April
Silpha tristis Ill.	2	PT	2-5	May
Silpha atrata L.	1,2,3,4	PT	21-100	May-Sept
LEPTINIDAE				
Leptinus testaceus Müll.	3	PT	1	March

CATOPIDAE					
Ptomaphagus subvillosus (Goez.)	1,2,4	PT	2-5	June, July, March	
Nargus wilkini (Spnc.)	1,2,3,4	PT	21-100	Oct, March	
Choleva spadicea (Sturm)	4	PT	1	March	
Choleva oblonga Latr.	4	PT	1	Jan	
Sciodrepoides watsoni (Spnc.)	1,2,3,4	PT	6-20	July	
Sciodrepoides fumata (Spnc.)	2	PT	2-5	July	
Catops kirkbii (Spnc.)	3	PT	1	May	
Catops tristis (Panz.)	2,3,4	PT	6-20	July, Oct, Dec	
Catops morio (F.)	1,2,3,4	PT	21-100	May-Dec	
Catops fuliginosus Er.	2,3,4	PT	6-20	Oct-Jan	
Catops nigricans (Spnc.)	3,4	PT	2-5	Oct, Dec, March	
LEIODIDAE					
Anisotoma humeralis (F.)	1	PT	1	June	
Amphicyllis globus (F.)	4	PT	1	Aug	
Agathidium nigrinum Strm.	2	PT	2-5	June	
CLAMBIDAE					
Clambus pubescens Redt.	1	OET	1	June	
SCYDMAENIDAE					
Neuraphes elongatulus (Müll.)	1,2	PT, OET	6-20	May-July, Oct	
Neuraphes sp.	2	OET	1	May	
Scydmoraphes helvolus (Sch.)	2,3	PT, OET	2-5	May-July	NB
Stenichnus scutellaris (Müll.)	2	PT	2-5	Oct	
Stenichnus collaris (Müll.)	1,2,3,4	PT	6-20	May, July, Aug	
CORYLOPHIDAE					
Sericoderus lateralis (Gyll.)	2	OET	2-5	May	
Orthoperus atomus (Gyll.)	1	OET	2-5	June	
Orthoperus nigrescens Steph.	1,2	OET	6-20	May, June	NB
PTILIIDAE					
Ptenidium pusillum (Gyll.)	2	OET	2-5	May	
Ptenidium sp.	1,2	PT,OET	2-5	June	

Acrotrichis 4 spp.	1,2,3,4	PT,OET	21-100	May - July
SCAPHIDIIDAE				
Scaphidium quadrimaculatum Ol.	2	PT	2-5	May
STAPHYLINIDAE				
Proteinus ovalis Steph.	2,4	PT	2-5	May, March
Proteinus brachypterus (F.)	1,2,3,4	PT	21-100	Oct, Nov, Jan-March
Omalium rivulare (Payk.)	1,2,3,4 and in fungus	PT	6-20	Oct, Nov
Omalium caesum Grav.	1,2,3,4	PT, OET	2-5	Dec, Jan
Phloeonomus punctipennis Thom.	3	PT	2-5	July
Phloeostiba plana (Payk.)	2,4	PT	2-5	Oct
Anthobium atrocephalum (Gyll.)	1,2,3,4	PT	21-100	Nov, Jan-March
Anthobium unicolor (Marsh.)	1,2,3,4	PT	21-100	Oct-March
Olophrum piceum (Gyll.)	4	PT	6-20	Oct, Nov, March
Lesteva heeri Fauv.	1,2,3,4	PT	21-100	Nov-Feb
Syntomium aeneum (Müll.)	2	PT	1	Aug
Anotylus sculpturatus (Grav.)	1,4	PT	2-5	April, July
Stenus subaeneus Er.	4	S	1	Aug
Stenus nanus Steph.	4	PT	2-5	Aug
Stenus fulvicornis Steph.	4	PT,S	2-5	May-July
Stenus tarsalis Ljungh	4	S	2-5	Aug
Stenus similis (Hbst.)	5	S	2-5	July
Stenus flavipes Steph.	3,4	PT,S	6-20	Sept, Oct
Stenus nitidiusculus Steph.	4	PT	1	March
Stenus impressus Germ.	4	S	2-5	May
Paederus littoralis Grav.	4	S	1	Sept
Rugilus rufipes Germ.	1	PT	2-5	June
Lathrobium fulvipenne (Grav.)	3	PT	2-5	June
Lathrobium brunnipes (F.)	2,3,4	PT	2-5	April, June
Leptacinus pusillus (Steph.)	1	PT	1	June
Xantholinus linearis (Ol.)	1,2,3,4	PT	6-20	April, May, Dec
Xantholinus longiventris Heer	4	PT	2-5	July, Sept

Atrecus affinis (Payk.)	1	PT	2-5	Aug
Othius punctulatus (Goez.)	1,2,3,4	PT	21-100	April-June, Oct-March
Othius myrmecophilus Kies.	1,2,3,4	PT	21-100	April, Aug-March
Philonthus atratus (Grav.)	1,4	PT	2-5	Sept
Philonthus intermedius (Bois.)	1	PT	2-5	Oct
Philonthus laminatus (Creutz.)	1	PT	2-5	July, Sept
Philonthus cognatus Steph.	1,2	PT	2-5	Oct
Philonthus succicola Thom.	2, nests	N	6-20	June
Philonthus decorus (Grav.)	1,2,3,4	PT	21-100	April-Aug
Philonthus varius (Gyll.)	4	PT	1	March
Philonthus splendens (F.)	1	PT	1	Oct
Philonthus marginatus (Strom.)	1,2	PT	2-5	July, Feb
Philonthus varians (Payk.)	4	PT	1	Sept 06
Ocypus olens Müll.	2,3,4	PT	21-100	July-Oct
Ocypus ater Grav.	2,3,4	PT	6-20	July, Sept, Oct, Feb, March
Ocypus compressus Marsh.	1,2,3	PT	21-100	July-Sept
Quedius lateralis (Grav.)	2 (mainly)	PT	21-100	Sept-Nov
Quedius curtipennis Bernh.	1,2,3,4	PT	21-100	April-July, Oct-March
Quedius tristis (Grav.)	1	PT	2-5	July
Quedius molochinus (Grav.)	4	PT	1	Sept
Quedius picipes (Mann.)	3,4	PT	2-5	June, Sept
Quedius nigriceps Kr.	2 (mainly)	PT	2-5	Sept-Nov
Quedius fumatus (Steph.)	1,2,3	PT	6-20	Sept-Nov
Mycetoporus lepidus (Grav.)	1	PT	6-20	July-Sept
Mycetoporus nigricollis Steph.	1	PT	1	Sept
Mycetoporus clavicornis (Steph.)	1 (mainly)	PT	6-20	June-Aug, Dec, Jan
Mycetoporus rufescens (Steph.)	1,2,3,4	PT	6-20	May, Nov, Dec
Mycetoporus splendidus (Grav.)	1,4	PT	2-5	July, Aug
Lordithon exoletus (Er.)	In fungi	C	1	Sept
Bolitobius cingulatus (Mann.)	3 (mainly)	PT	6-20	Oct
Bolitobius inclinans (Grav.)	1,2,3,4	PT	6-20	June, July, Nov

Sepedophilus marshami (Steph.)	1	PT	1	May	
Tachyporus nitidulus (F.)	3	PT	1	March	
Tachyporus hypnorum (F.)	All sites	PT,S	21-100	Oct-Dec, Feb, March	
Tachyporus chrysomelinus (L.)	1,3,4	PT	6-20	June, July, Oct-Dec	
Tachyporus tersus Er.	1,2,3,4	PT,OET,S	2-5	May, Aug, Oct	
Tachyporus atriceps Steph.	2,4	PT,OET	2-5	May, March	
Tachinus proximus Kr.	4	PT	6-20	June, July	
Tachinus subterraneus (L.)	2	PT	1	Feb	
Tachinus pallipes Grav.	1,4	PT	2-5	May, June	
Cypha longicornis (Payk.)	2,4	PT,OET	2-5	May, July	
Cypha discoidea (Er.)	On sallow	B	1	May	NB
Autalia impressa (Ol.)	1,2,3,4 and in fungi	PT, S, C	21-100	June, Sept-Nov	
Drusilla canaliculata (F.)	Mainly 3 and 4	PT	21-100	April-Oct	
Oxypoda 2 spp.	1,2	PT	2-5	Nov, Dec, Feb	
Aleochara (s.s.) curtula (Goez.)	1,2	PT,N	6-20	June, Aug	
Aleochara sparsa Heer	2	PT	2-5	July, Aug	
Aleochara (Xenochara) sanguinea (L.)	1	PT	1	July	NB
Aleochara (Xenochara) fumata Grav.	1	PT	1	Aug	RDB
Aleocharinae 40 spp. approx.	Everywhere	All	Over 100	Not Jan	
PSELAPHIDAE		PT			
Bryaxis curtisi (Leach)	1,2	PT	2-5	June, Aug	
Bryaxis bulbifer (Reich.)	1	PT	2-5	May	
Brachygluta fossulata (Reich.)	2,3,4	PT,S	6-20	May, June, Aug	
Pselaphus heisei (Hbst.)	2,4	PT	2-5	June, Aug	
LAMPYRIDAE					
Lampyris noctiluca (L.)	Verge and wood lower part Binsted Lane		21-100	July	
CANTHARIDAE					
Cantharis pellucida F.	4	S	1	June	
Rhagonycha fulva (Scop.)	4,7	S,CF	21-100	June, July	
Rhagonycha lignosa (Müll.)	4 and on trees	S,B	21-100	May-July	

Malthinus seriepunctatus Kies.	7	S	1	June	
Malthinus balteatus Suffr.	6	S	1	July	NB
Malthinus frontalis (Marsh.)	1	PT	1	July	NB
Malthodes minimus (L.)	1,5	S	2-5	May-July	
Malthodes marginatus (Latr.)	1	S	1	June	
MELYRIDAE					
Malachius bipustulatus (L.)	5	S,CF	6-20	May, June 06	
ELATERIDAE					
Ampedus elongatulus (F.)	4	C	1	June	NA
Adrastus pallens (F.)	4	PT,S	2-5	May, June	
Agriotes pallidulus (Ill.)	Everywhere	PT,S,B	Over 100	May, June	
Agriotes acuminatus (Steph.)	Trees	B	2-5	May	
Agriotes obscurus (L.)	1,4	PT,S	2-5	April-July	
Athous haemorrhoidalis (F.)	1,5,6 and tree	PT,B,S	2-5	May, June	
Athous bicolor (Goez.)	3	PT	2-5	July, Aug	
THROSCIDAE					
Trixagus carinifrons (Bonv.)	1,2,4 and beech	PT,B	6-20	May-Aug	
BUPRESTIDAE					
Agrilus laticornis (Ill.)	6	S	1	July	NB
SCIRTIDAE					
Cyphon coarctatus Payk.	4 and sallow	S,B	2-5	May	
Cyphon ochraceus Steph.	1,2,3	S	2-5	June, July, Sept	
DERMESTIDAE					
Dermestes murinus L.	1	N	1	June	
Dermestes lardarius L.	1	N	1	June	
Anthrenus verbasci (L.)	5	CF	1	June 06	
BYRRHIDAE					
Cytilus sericeus (Forst.)	5	S	1	May	
BYTURIDAE					
Byturus tomentosus (Deg.)	4,7 and on birch	S,B	6-20	June-Aug	
NITIDULIDAE					

Kateretes rufilabris (Latr.)	4	S	1	June	
Brachypterus glaber (Steph.)	5,7	S	21-100	July, Aug	
Meligethes atratus (Ol.)	5,7	S	2-5	July, Aug	
Meligethes aeneus (F.)	5,7	S	21-100	June-Aug	
Meligethes rotundicollis Bris.	6,7	S	2-5	July, Aug	N
Meligethes ovatus Strm.	5	S	2-5	July	
Meligethes obscurus Er.	5	S	1	July	
Meligethes gagatinus Er.	5	S	2-5	June, Aug	NB
Epuraea fuscicollis (Steph.)	3	PT	2-5	July	NB
Epuraea unicolor (Ol.)	1 mainly	PT	21-100	May	
Epuraea depressa (Ill.)	1,2	PT,S	2-5	May, Aug-Oct	
Epuraea marseuli Reitt.	4	S	1	March	
Soronia punctatissima (Ill.)	2,3	PT	2-5	July, Sept	
Cychramus luteus (F.)	5	CF	1	June 06	
Cryptarcha strigata (F.)	2	PT	2-5	July	NB
Glischrochilus quadriguttatus (F.)	1,2	PT,S	2-5	May, June, Jan	
RHIZOPHAGIDAE					
Rhizophagus bipustulatus (F.)	1,4	PT	2-5	May, Dec	
Rhizophagus perforatus Er.	2 mainly	OET	6-20	May	
Rhizophagus dispar (Payk.)	1,2,4,5	PT,S	2-5	May, June, March	
CUCUJIDAE					
Ahasverus advena (Waltl)	1	OET	1	Aug	
Pediacus dermestoides (F.)	1	PT	1	July	
CRYPTOPHAGIDAE					
Cryptophagus (Micrambe) vini (Panz.)	4	S	1	May	
Cryptophagus pubescens Strm.	1	PT	1	Sept	
Cryptophagus 5 spp.	1,2,3	PT,S	21-100	June, Aug, Oct	
Atomaria 12 spp.	1,2,3,4	PT,OET	21-100	April-July	
Ephistemus globulus (Payk.)	2,4	S, OET	2-5	May-June	
PHALACRIDAE					
Olibrus aeneus (F.)	1,5	S	2-5	Aug, Oct	

LATHRIDIIDAE					
Aridius bifasciatus (Reitt.)	1,2,4,6,7	S,OET	6-20	May, June, Aug, Sept	
Aridius nodifer (West.)	1,6	S,OET	6-20	June, July	
Lathridius minutus/pseudominutus (L.)/Strand	1,2,3 (3 main areas)	PT,S	21-100	May-Sept	
Enicmus transversus (Ol.)	1	OET	2-5	June	
Enicmus histrio Joy & Tomlin	1,2	S,OET	6-20	May, June	
Cortinicara gibbosa (Hbst.)	All	S,OET	21-100	May-Sept	
Corticarina fuscula (Gyll.)	1,2,5	S,OET	6-20	May, June, Aug	
CERYLONIDAE					
Cerylon fagi Bris.	2	OET	1	June	NB
Cerylon ferrugineum Steph.	1,2 and in fungus	PT, OET	6-20	May-July, Sept	
ENDOMYCHIDAE					
Lycoperdina bovistae (F.)	1,4	PT	2-5	April, May, July	RDB3
COCCINELLIDAE					
Adalia bipunctata (L.)	6	S	2-5	July, Aug	
Coccinella septempunctata L.	5,6,7	S	6-20	June-Oct	
Propylea 14-punctata (L.)	3,4,5	S	6-20	May-Aug	
CISIDAE					
Cis nitidus (F.)	1, Bracket fungus	C,OET	2-5	June, Sept	
Cis bilamellatus Wood	Bracket fungus	C	6-20	Sept	
Cis fagi Waltl	1	PT	1	Jan	
Cis bidentatus (Ol.)	Bracket fungus	C	1	Sept	
Cis pygmaeus (Marsh.)	1	OET	1	June	
OEDEMERIDAE					
Oedemera nobilis (Scop.)	6	S	21-100	June	
Oedemera lurida (Marsh.)	5	S	2-5	May	
SALPINGIDAE					
Vincenzellus ruficollis (Panz.)	5	S	1	May	
SCRAPTIIDAE					

Tomoxia bucephala Costa				1990 (recorded by Dr Haes)	NA
Variimorda villosa (Schr.)	5	S	2-5	June-Aug	NB
Anaspis frontalis (L.)	2,5,7	PT,C	2-5	June, Sept	
Anaspis maculata Fourc.	2	OET	2-5	May	
Anaspis garneysi Fowler	5	CF	1	June	
MELANDRYIDAE					
Orchesia undulata Kr.	1	PT	1	July	
TENEBRIONIDAE					
Alphitobius diaperinus (Panz.)	3	PT	1	Aug	
Cylindrinotus laevioctostriatus Go	1 (Mainly)	PT	21-100	April, May, Oct, March	
SCARABAEIDAE					
Typhaeus typhoeus (L.)	1,2,3,4	PT	6-20	May, June, Oct-Dec	
Geotrupes stercorosus (Scrib.)	2	PT	2-5	July, Aug	
Onthophagus similis (Scriba)	2	PT	2-5	Aug	
Aphodius sticticus (Panz.)	1	PT	2-5	April, May	
Melolontha melolontha (L.)	Old Scotland Lane	In light trap	1	Summer 05	
Cetonia aurata (L.)	5	CF	1	June 06	
LUCANIDAE					
Lucanus cervus (L.)	1		2-5	Occasionally seen by game keeper	
Dorcus parallelipipedus (L)	2	PT	2-5	Aug	
Sinodendron cylindricum (L.)	1,2	PT, C, OET	2-5	May, July	
CERAMBYCIDAE					
Rhagium mordax (Deg.)	6,5	C,CF	2-5	May, June 06	
Grammoptera ruficornis (F.)	5,1, on beech	B, CF	2-5	May, June	
Judolia cerambyciformis Schr	5	CF	2-5	June, June 06	
Strangalia aurulenta (F.)				1990 (recorded by Dr Haes)	NA
Strangalia maculata (Poda)	2,4,7	OET, CF	21-100	May-Aug	
Strangalia melanura (L.)	5	CF	6-20	June 06	

Leiopus nebulosus (L.)	1	PT	1	June	
CHRYSOMELIDAE					
Oulema melanopus (L.)	4,5,6,7	S	6-20	May-Sept	
Cryptocephalus moraei (L.)	6	S	2-5	June 06	
Cryptocephalus fulvus Goez.	4	PT	1	March	
Cryptocephalus pusillus F.	1,4	OET, S	2-5	June, July	
Chrysolina varians (Schall.)	6	S	6-20	June	
Chrysomela populi L.	4	S	1	July	
Phyllotreta vittula Redt.	1	S	1	July	
Phyllotreta cruciferae (Goez.)	2	PT	1	Nov	
Phyllotreta diademata (Foud.)	5	S	2-5	May	
Phyllotreta nigripes (F.)	6	S	1	Sept	
Aphthona euphorbiae (Schr.)	1,2,4,5	PT, S	6-20	Dec, Jan	
Longitarsus dorsalis (F.)	3	PT	1	March	NB
Longitarsus 5 spp.	All	PT, S	21-100	May, June, Aug, Oct, Feb, March	
Haltica palustris Weise	6,7	S	2-5	June, Sept	
Lythraria salicariae (Payk.)	1	PT	1	July	NB
Crepidodera fulvicornis (F.)	1, 6 on hazel	B	6-20	July, Aug	
Crepidodera aurata (Marsh.)	4, on sallow	S, B	6-20	May, July	
Chaetocnema concinna (Marsh.)	4, 6	S	2-5	May, Aug	
Chaetocnema aridula (Gyll.)	3,4,5	PT, S	2-5	May, Aug	
Chaetocnema hortensis (Fourc.)	1,4	PT, S	2-5	Aug	
Sphaeroderma testaceum (F.)	2,4,5	S	2-5	May, July, Aug	
Sphaeroderma rubidum (Graells)	5	S	1	June 06	
Apteropeda orbiculata (Marsh.)	3,4	PT, S	6-20	April, May, Oct, Jan	
Psylliodes affinis (Payk.)	6	S	1	June	
Psylliodes chrysocephala (L.)	6	S	1	Aug	
SCOLYTIDAE					
Xyleborus saxeseni (Ratz.)	4	S	1	May	
CURCULIONIDAE					

Rhynchites caeruleus (Deg.)	6	S	1	Aug	
Apion frumentarium (Payk.)	6	S	1	May	
Apion (Squamapion) vicinum Kirby	4,6	S	2-5	July, Sept	NB
Apion (Acanephodus) onopordi Kirby	4,5	S	2-5	July, Aug, Sept	
Apion (Synapion) ebeninum Kirby	3,4	PT	2-5	April, May, March	
Apion (Ischnopterapion) loti Kirby	5	S	2-5	May, June	
Apion (Protapion) fulvipes (Geoff.)	4, on sallow	S, B	2-5	May	
Apion (Protapion) apricans Hbst.	On oak	B	1	June	
Caenopsis waltoni (Bohe.)	1 (Mainly)	PT	Over 100	April-Oct	
Phyllobius viridiaeris (Laich.)	5	S	2-5	June 06	
Phyllobius argentatus (L.)	2, on hazel, oak	PT, B	2-5	May, June, Aug	
Polydrusus cervinus (L.)	1,2,3,5, on oak	PT, B	21-100	May, Aug, Sept	
Sciaphilus asperatus (Bonsd.)	5	S	2-5	June	
Barypeithes araneiformis (Schr.)	Mainly 1,3,4	PT	Over 100	April-July, March	
Barypeithes pellucidus (Bohe.)	3,4	PT	21-100	May-July	
Strophosoma melanogrammum (Forst.)	All	PT, S	21-100	April-Oct, Nov-March	
Sitona striatellus Gyll.	On birch	B	2-5	May	
Sitona lineatus (L.)	1,4, 5,6,7, on sallow	S,B	21-100	May-Oct	
Sitona puncticollis Steph.	4	S	1	Oct	
Sitona hispidulus (F.)	On gorse	S	1	Oct	
Euophyrum confine (Broun)	2,5	PT, OET, S	2-5	May-Aug	
Smicronyx jungermanniae Reich	2,4,6	OET,S	2-5	May, June	RDB3
Ellescus bipunctatus (L.)	4	S	1	May	NB
Curculio glandium Marsh.	On oak, beech	B	2-5	May	
Curculio rubidus (Gyll.)	4	S	1	Aug	NB
Curculio salicivorus Payk.	1,4, on sallow	S, B	6-20	May	
Curculio pyrrhoceras Marsh.	1, 5	S	2-5	May, June	
Trachodes hispidus (L.)	1,2	PT	6-20	May, July-Oct	NB
Leiosoma deflexum (Panz.)	4	PT	1	April	
Acalles roboris Curt.	1,2	PT	21-100	May-Aug	NB
Acalles misellus Bohe.	1,2	PT	6-20	May-Aug, Oct, Nov, Jan	

Rhinoncus pericarpius (L.)	4	PT	2-5	June, July	
Ceutorhynchus pallidactylus Marsh.	4	S	1	Oct	
Ceutorhynchus assimilis (Payk.)	5	S	1	July	
Ceutorhynchus pollinarius (Forst.)	7	S	6-20	Aug	
Ceutorhynchus campestris Gyll.	6	S	1	July	NB
Ceutorhynchus litura (F.)	6,7	S	6-20	June, Aug	
Ceutorhynchus asperifoliarum Gyll.	4	S	1	May	
Ceutorhynchus melanostictus (Marsh.)	4,7	S	2-5	June, Aug	
Cidnorhinus quadrimaculatus (L.)	5,7	S	2-5	July, Aug	
Orobitis cyaneus (L.)	4	S	1	Aug	
Cionus hortulanus (Fourc.)	5,6	S	2-5	May, July	
Cleopus pulchellus (Hbst.)	4,5	S	2-5	May, July	
Anoplus plantaris (Naez.)	On birch	B	2-5	May	
Rhynchaenus pilosus (F.)	On beech	B	1	May	
Rhynchaenus quercus (L.)	On oak	B	1	May	
Rhynchaenus fagi (L.)	1	PT	1	Jan	
Rhynchaenus stigma (Germ.)	On sallow	B	6-20	May	
Rhynchaenus salicis (L.)	On sallow	B	6-20	May	
Rhamphus pulicarius (Hbst.)	4	S	1	July	

Most of the illustrations of beetles were taken from HARDE, K. W. (1984) *A Field Guide in Colour to Beetles,* Octopus, London. Permission to reproduce these drawings was sought but it was not possible to trace the holder of the copyright.

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REPORT ON THE BEETLES OF BINSTED WOODS

Introduction

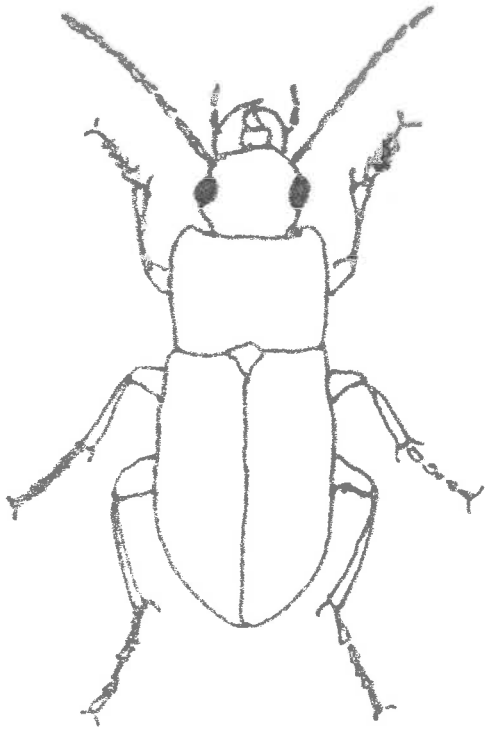
Binsted Woods, the largest area of broad-leaved woodland on the Sussex coastal plain, has a wide variety of trees and flowering plants, which support an abundance of wild life. The term "Binsted Woods" is used here to cover the whole wooded area south on the A27, which is made up of Tortington Common, Binsted and Paynes Woods. It is acknowledged as being of national significance and is designated a Site of Nature Conservation Importance (SNCI). The number of different species of plants in these woods is more than in many areas with the higher designation of Sites of Special Scientific Importance (SSSI). "The woods form a good habitat for bats, birds, moths and butterflies and there are many badgers and deer". This is a quote from the booklet "Walberton Past and Present," edited by Emma Tristram and published in 1999, from which most of the information in this introduction was gleaned. It omits to mention beetles. Although worldwide they are the most successful of all creatures, in this country we have more Hymenoptera (bees, wasps and ants), and Diptera (flies) than beetles, of which there are a mere 4000 species. This survey aims to demonstrate and display the beauty and variety of that neglected group, which are found in abundance in these woodlands.

These woods originally were part of a larger area called Arundel Forest. The upper part lies over Reading Beds Clay, while the southern end stands on a more silty and sandy layer. Where the wood meets the A27, there are patches of later material overlying the clay, forming more sandy areas. The underlying clay helps to keep the ground moist and the paths muddy. Old Scotland Lane, an ancient track running through the woods, is particularly wet in places as is the path leading from it at the side of Paynes Wood. This is caused by the mains water pipe, owned by the Southern Water Authority, running alongside these tracks and which frequently bursts creating local flooding.

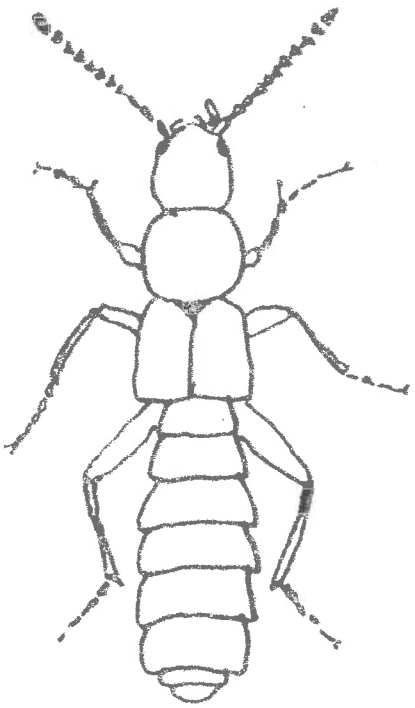
Why are beetles so successful? Firstly, they have a very good basic body plan, which is easily adaptable to different conditions. As in all insects, the internal organs are protected by a hard outer layer, the exoskeleton. This limits the size of the organism, so that all insects are small compared to vertebrates, which are supported by an internal skeleton. The exoskeleton in beetles is particularly thick and waterproof enabling them to live in drier environments than their close relatives, such as the flies. The most obvious characteristic of insects is their ability to fly. This is achieved by having two pairs of wings, which are modified in different ways in the different insect groups. In the beetles one set of wings forms a hard sheath-like layer to protect the delicate functional wings below. Hence the Latin name for the group, Coleoptera, which means sheath wing. This heavy covering means that beetles are relatively clumsy fliers and some have abandoned flight altogether. Insects also have three pairs of jointed legs and other appendages modified for different functions in different parts of the body. In beetles the appendages round the mouth are modified into biting mouthparts, which are able to deal with tough food materials such as pollen grains, fungal spores and plant material generally, or enable them to be successful predators.

One of the consequences of having an exoskeleton is that growth is difficult. The only way to grow is to periodically shed the skin. The complex structure of the adult makes this impossible, so insects have different body forms at different stages of the life cycle. They hatch from the egg into a larva or grub, a relatively simple form, without wings, that is able to shed its skin quite easily. This concentrates on feeding and growing big. When large enough it becomes a pupa and within the pupal case the body is reorganised into the adult form. The

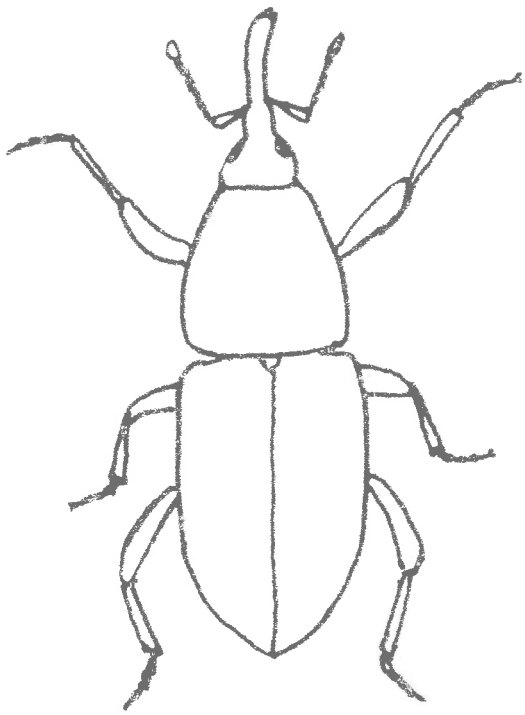
Basic Beetle Body Forms



BASIC FORM



ROVE BEETLE



WEEVIL

main purpose of the adult is to disperse the species as widely as possible and to reproduce. Another advantage of having a pupal stage is that the organism can use it to wait out unsuitable conditions such as cold weather, when the good times reappear the adult emerges, ready to breed. Beetles also make use of diapause a stage of inactivity, which may occur during the larval or adult phase and which can be used to synchronise life cycles.

Their versatility, high degree of specialisation, coupled with their small size means that there are numerous microhabitats and ecological niches that they can exploit. The basic plan has been modified in two ways, see the diagram on page i. In the Staphylinids (rove beetles) the body is elongated and the wing cases shortened. This enables them to wriggle through confined spaces and makes them the most adept at flight. About half the British beetles are of this form, many very small and difficult to distinguish. The other main modification is an elongation of the head to form a snout tipped by the biting mouthparts, which is used to bore into tough plant materials. This is found in the Curculionids, or weevils. Woodland is home to a large number of different beetles, exploiting a wide range of habitats.

Beetles are worth investigating not just to marvel at their diversity but they can also be useful tools for conservationists for: -

> " ....beetles have much to offer conservation in addition to having conservation needs of their own. They have a high degree of specialisation, coupled with short, often annual life cycles and sometimes poor powers of dispersal and colonisation. This means that they can be very useful indicators of both habitat quality and continuity of suitable habitats. They frequently respond much more rapidly to environmental changes than does vegetation and may thus be used for early warning of habitat change and degradation. A diverse beetle fauna, typical of the habitat on the site, may be a very good indication of its health."
> From a report by the Joint Nature Conservation Committee.

However because of their unpopularity, inaccessibility and bewildering diversity, making identification difficult, few studies of this nature have been attempted. Those that have been have mainly been in areas, known to be important as relics of ancient woodland and have concentrated on deadwood species. Binsted Woods, which although unusual in some ways, can be considered typical of modern woodland. This study is pioneering in its scope and hopefully it will be useful for future comparisons.

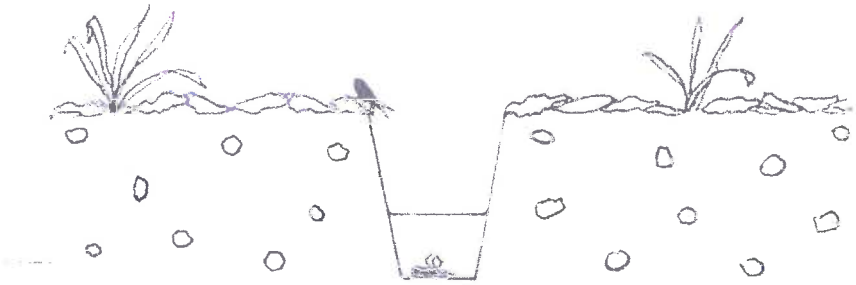
Aims of the Survey

The aim of the survey was to investigate the conservation value of the area by recording the beetles found and details of their ecology over a period of a year.

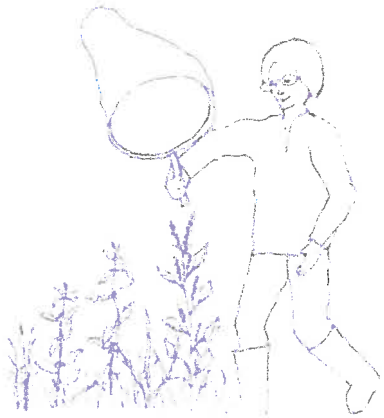
Objectives

- To provide data on the species diversity of the Coleoptera of the area.
- To establish a baseline for future studies, so that the effects of future developments in the area can be assessed and to provide information that may affect management practices.
- To establish whether this site provides habitats for rare or endangered beetle species particularly those living in dead wood (e.g. stag beetles).
- To establish, through the "dead wood" beetles recovered, the importance of the site as a relic of ancient woodland.
- To further scientific research into woodland sites.
- To try to raise the profile of beetles to the general public.

Sampling and Collecting Methods



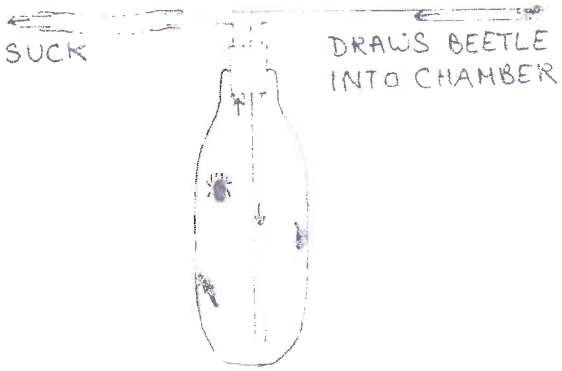
A pitfall trap



Sweeping

Owen's Emergence Trap

Beating



A pooter

Methods used to collect beetles

More technical details of the methods used and a critique of them may be obtained from the author.

These methods are illustrated on page ii.

1. PITFALL TRAPPING

Small plastic beakers were buried in the ground so that the tops were level with the ground surface and a small amount of liquid placed in each. The liquid was anti-freeze (ethylene glycol) or household vinegar (5% acetic acid) this killed the beetles, prevented them from eating each other, and preserved them so that the traps could be left for a month without emptying. It also acted as bait and the different substances attracted different types of beetles and other creatures. Initially no lids were used and the resulting dilution by rainwater was not considered a problem. However, in the autumn the large quantities of falling leaves would choke the traps, so covers were made which were designed to keep leaves out but not effect the beetle movements.

The traps were set 2m apart in lines. They were emptied and refilled 12 times at monthly intervals from April 2005 to April 2006.

2. SWEEPING VEGETATION

This is done by slowing walking along, beating the vegetation with a deep net using a figure of eight movement. After a few minutes the contents of the net are shaken down, the top of the net folded over and then the contents are examined. On opening the net, a diversity of insect life is revealed. A variety of flies usually escape first, followed by grasshoppers and leaf hoppers, then many different types of spiders and plant bugs start crawling out of the net. Most of the beetles can be found at the bottom, often playing dead at first. They can be collected up into a pooter (see illustration).

By this method some of the amazing richness of the insect life, which is not usually visible to us, can be appreciated. This is the best way to collect plant eating species and other beetles active during the daytime. However they are surprisingly fickle creatures, so that one day a great variety of interesting species might be collected and another day very few. The more sweeping undertaken the longer the species list becomes. For some of the species on the list, only one example was ever found.

Frequent sweepings were undertaken all the year, except for winter. In the summer months when the herbaceous plants are at their best, it was carried out three times in the month. Further sweepings took place in June 2006 and more species added to the list.

3. BEATING

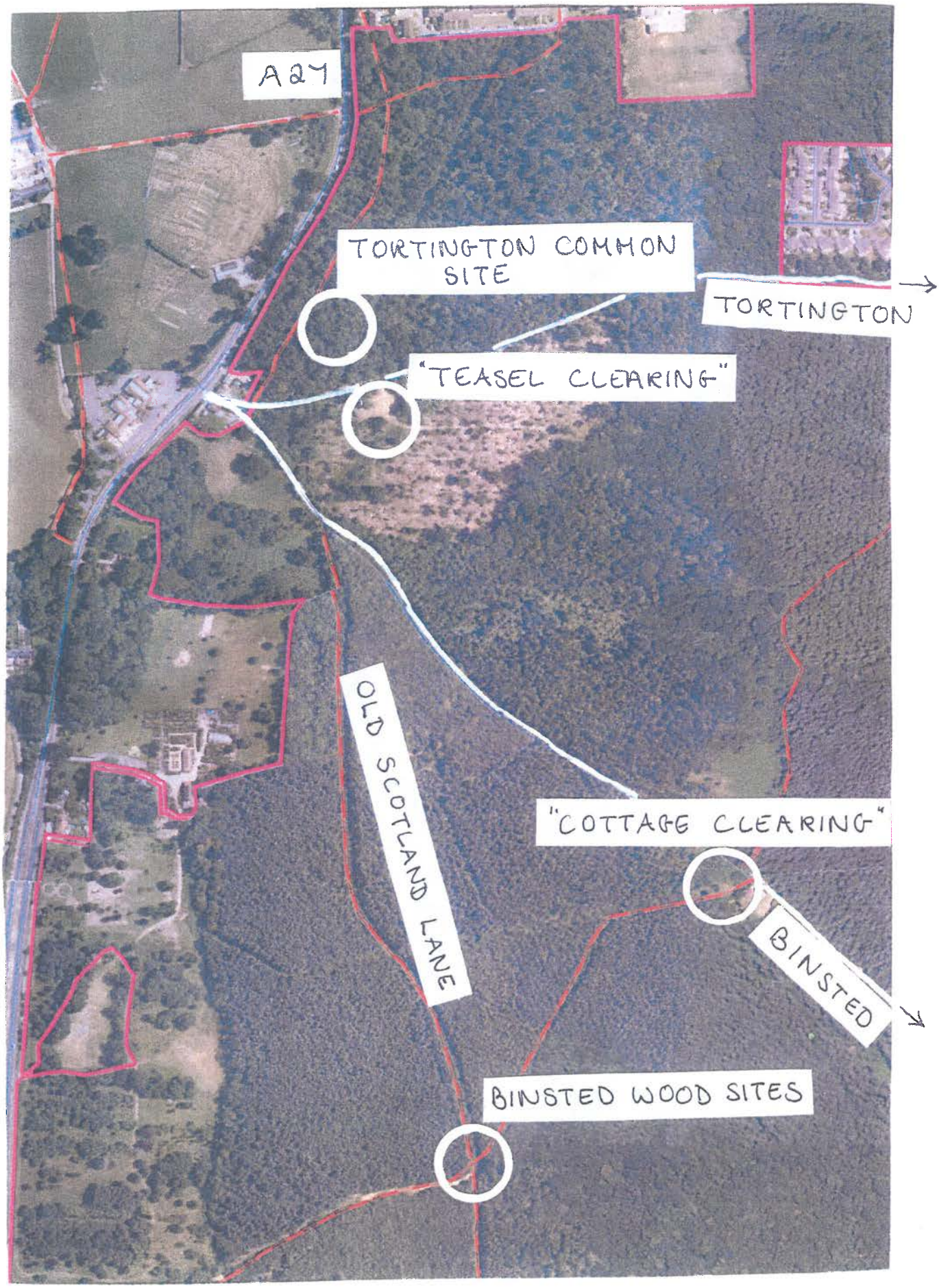
The insect life on trees can be examined by shaking a branch of a tree over a white sheet. The fallen beetles can then be collected up using a pooter. This method does not usually produce many specimens, again it is fickle, one day being good and another, for no obvious reason, being poor. Only the lower branches of trees can be reached and so it may not be representative of the whole tree insect community.

Tree beatings were carried out in Spring as young leaves are more attractive as a food.

4. OBSERVATION OF FLOWERS

Many beetles, which feed on pollen or nectar, are strongly attracted to flowers, especially those of the umbelliferous variety and it is very worthwhile to stand by such plants and observe the visiting insects. Interesting beetles can be caught for identification.

Aerial Photograph Showing Sampling Sites



Pitfall Traps Sites

Binsted Wood site under beech tree, showing traps with lids

Sites at Corner of Binsted Wood

Bank alongside the wood

In grass at side of Old Scotland Lane

Tortington Common site, traps with lids also visible

Some more observations took place in June 2006 and new species for the list were found.

The other methods involved removing material and extracting the beetles at home.

5. IMITATION NESTS

An imitation nest can be made by wrapping a piece of raw fish in dry grass and placing it in a netting bag. Two of these were made and placed up trees for a couple of months.

The recovery of the beetles was not pleasant but productive.

6. OWEN EMERGENCE TRAP

This is a tent like structure with sides made of netting so that air and water can pass in and out. Dead wood is placed in the "tent" and is left there for several months. Any beetle larvae already present in the wood continue their normal life cycle. When they metamorphose into adults their instinct is to fly up and away to colonise new areas. Instead they are caught in the trap and can be examined.

7. COLLECTING FUNGI

Fungi, especially bracket fungi from trees, are a source of particular species of beetles. In order to remove the beetles, which are often very small, the fungi were taken home and immersed in water whereupon the beetles floated out.

8. CANOPY TRAPS

An area, which had been largely neglected during the year's survey, was the tree canopy. One way of sampling this area is with bottle traps. These are made from groups of three old 2l plastic drink bottles with openings cut into each one at the side. They are hoisted up a high as is practicable in the trees and left for a month or two. Each bottle in the group of three was filled with a different liquid, namely 50% ethylene glycol, 5% acetic acid or an ammonia solution.

This experiment started on 14th June 2006 and is still continuing.

Areas sampled

Four sites within the woods were selected for pitfall trapping. They were chosen because of their differences. At each site the amount of shade and of dampness varied and influenced the ground cover and hence the invertebrate fauna. All the areas sampled were dominated by broad-leaved trees. Within the wood, there are areas planted with conifers. These would have produced a different beetle fauna but they were not studied. Larger woodland clearings are important areas for beetles and several of these were regularly examined.

The areas investigated are shown on the aerial photograph on page iii and are described below.

PITFALL TRAPS SITES

Photographs of these sites can be seen on page iv.

1. Tortington Common

This is at the western end of the wood. It consists of typical mixed woodland with a large variety of trees and with many clearings, where enough light penetrated through the canopy for grass, brambles, honeysuckle and other plants to grow. Traps were laid in one of these open spaces, which was surrounded by several large oaks as well as yew, birch, hazel, sweet chestnut and holly.

2. Edge of Binsted Wood

Three sampling areas were chosen here. This site is deeper in the woods and lies at the Western upper corner of Binsted Wood proper, at a crossroads with Old Scotland Lane. Here the wood is much denser and more impenetrable. The first was in a clearing under a massive, old beech tree. The tree is shedding large branches, which lie scattered on the ground beneath it. Little can grow under its shade. Dead leaves cover the ground all through the year as beech leaves decay slowly. This site is a long neglected sweet chestnut coppice. Now the multiboled chestnuts are interspersed with hazel and birch. The beech was possibly left as a boundary marker.

The second area was close by on a bank at the side of Old Scotland Lane, at the Southern end of Paynes Wood. This it was the driest of the four sampling points. Behind it was a rather scrubby growth of birch trees and behind that Scots pine and in front was a stream edged with small sallow willow and other plants typical of wet conditions. A few shrubs such as ivy and honeysuckle grew on the bank but there was also some bare earth as the leaves tended to blow down to lower lying areas.

The third area sampled was Old Scotland Lane itself. This is a wide path where grass and low vegetation grows. Partly because of leakages from the water pipe beneath it, the area is continuously wet and there are many plants of marshy ground growing here.

SWEEPING SITES

Beating and sweeping were carried out at the pitfall trap sites outlined above. In addition three other areas, all larger clearings in the woods, were routinely swept.

1. Teasel Clearing

There was a large clearing at Tortington Common on the opposite side of the road to the pitfall trap site. It was formed by the removal of large oaks for timber and, on my first visit, to assess the project, in early 2005, looked a terrible mess. The clayey ground had been very churned up by the heavy machinery. However by the summer the whole plot was covered with teasels and other flowers and was a rich source of the beetles feeding from them.

2. Cottage Clearing

This clearing, at the start of the path leading to the Binsted Wood sites, was dominated by a large patch of nettles and much bracken. It lies behind a cottage in the wood and the nettles probably indicate that household waste had been thrown there, as nettles grow in areas of high fertility. One side of this clearing lies under telephone cables and halfway through the survey the strip of land beneath them was completely cleared. Much of the vegetation in this clearing was thus lost.

3. Road Verge Tortington Road

At the road edge where hedge-side plants are able to establish a foot hold.

Identifying and recording the beetles

The beetles collected by pitfall trapping were already dead and most of those collected live had to be killed for certain identification. In many cases, species can only be verified after close examination under a microscope or even after dissection. Killing these specimens, a minute fraction of those in the woodland community, is an unfortunate necessity.

The aim was to name to species and, except for a few difficult taxa, this was achieved. Where it was not possible, the number of species, for each genus, was recorded. "Voucher" specimens, representatives of all the species found, have been kept, mounted on card. Photographing them proved more difficult for technical reasons and so was not carried out. Identifications have been carefully checked; by comparison with museum specimens, by consulting more specialised reference works or by consulting experts.

All the beetles collected by pitfall trap have been recorded by species, numbers of individuals, date, and place. Beetles, collected by other methods, have been recorded by numbers showing their relative frequency. This is because actual numbers were more dependant on unmeasurable factors such as the weather or the length of the collection time and not every individual was recorded.

These data are held by the author.

Results

The woods proved to be very rich in beetles with over 11,000 individual beetles collected and recorded during this survey. These belonged to just over 400 different species from 46 different families. Twenty five are on the Red Data Book list of endangered species. For about a quarter of the species listed only one example was found and new species continued to be discovered throughout the year and when more work was carried out the following June. This indicates that this list is not complete. The canopy traps are still awaiting analysis and further visits particularly in June and July would be productive. As most people walking through the woods rarely notice any beetles, I will explain where they were found and how they fit into the woodland economy. In order to illustrate this I have grouped the beetles as follows.

- Ground-living beetles
- Those living in dead trees
- Those living on living trees or other plants
- Those feeding on carrion, dung or other foul matter
- Rare species

GROUND-LIVING BEETLES

This group was the one most thoroughly investigated because the lines of pitfall traps collected a fair sample of all beetles running about on the woodland floor, day or night, over the whole year. Around 130 species of ground-living beetles were identified.

This is an attractive habitat for many different invertebrate species. The ground in woods is covered by leaf litter, which provides a moist sheltered environment but is not very nutritious or digestible. However some fungi and bacteria are able to make use of it and they start the breakdown process. Tiny creatures called springtails and mites plus a few larger ones such as worms, molluscs, woodlice and millipedes can then utilise the decaying leaves. They, in turn, are preyed upon by beetles.

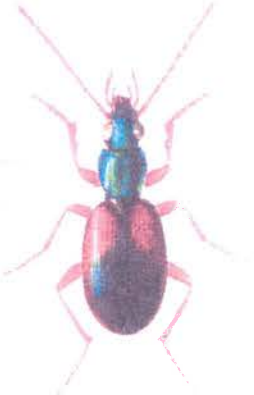
Most of these hunters belong to the carabid family, whose English name is ground beetle. They are particularly well adapted to this habitat and many have grown large and lost the ability to fly. Their hind legs are attached in such a way that they can use them as a lever to push under

Ground Living Beetles

Diurnal predators

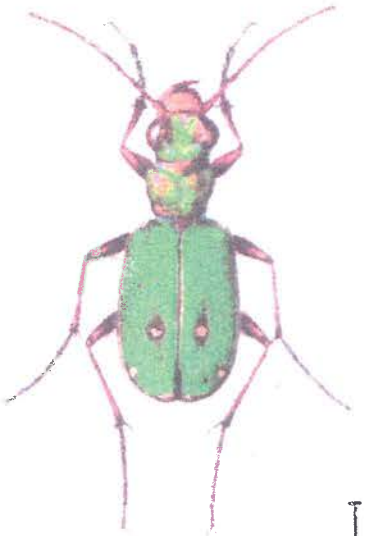
Notiophilus biguttatus

Leistus rufomarginatus



Agonum dorsalis

Stenus fulvicornus

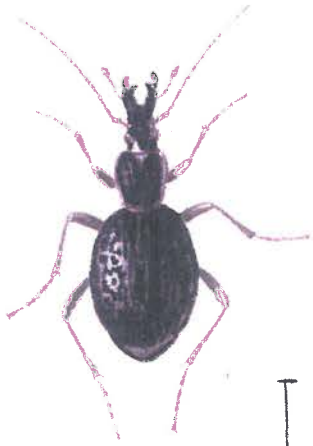


Cicindela campestris

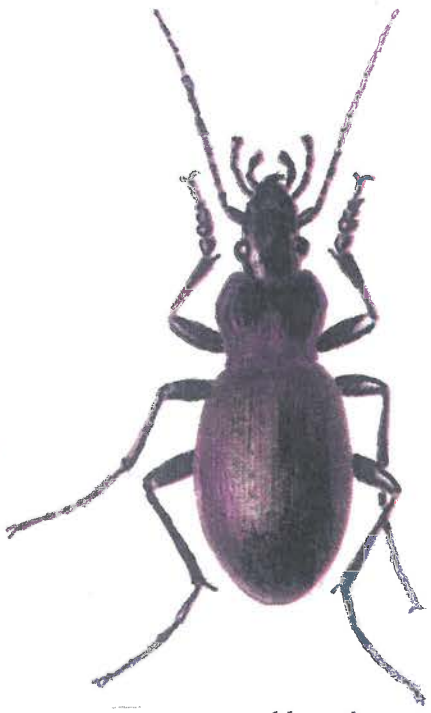
Nocturnal predators

Staphylinus olens

Pterostichus madidus



Cychrus caraboides



Carabus problematicus

Beetles with root eating larvae

Caenopsis waltoni

Barypeithes araneiformis

Agriotes pallidulus

logs, stones and other obstacles. Those hunting springtails are small, have good eyesight and great agility as, as their name implies, these tiny insects spring in the air when disturbed. These diurnal hunters often have a metallic hue, e.g *Notiophilus biguttatus*, the commonest species found, or may be brightly coloured. This is certainly true of the tiger beetle, *Cicindela campestris,* which is bright green with yellow spots. It can be seen on the path leading up at the side of Paynes Wood, darting about hunting ants, which are its prey.

However, the most numerous carabids in these woods are large and black. These are most commonly thought of as typical beetles. They hide under dead wood or stones in the day and are active at night. The most frequently collected beetle, in this survey *Pterostrictus madidus*, the Black Clock, is one of these. This species is also common in fields and gardens, unusually it is omnivorous eating both plant and animal material. Over 1400 specimens were found during this survey. Even larger ground beetles, from the genus *Carabus* species, were present. These are very striking as they have a violet or coppery sheen. They may climb trees and feed mainly on slugs. One carabid *Cychrus caraboides*) has a specially elongated head to penetrate snail shell and feed on the contents.

Other predatory beetles are members of the rove beetle family. They range in size from tiny, a few millimetres, to the fearsome Devil's Coachhorse (*Staphylinus olens*) up to 25 mm long. The latter can rear up and secrete a noxious fluid from its tail end. The larger examples can attack prey such as woodlice, worms and molluscs.

The leaf-rotting fungi also provide food directly to tiny mould feeding beetles.

Another source of food for ground living beetles is plant roots. The click beetles, Family Elateridae, so called because they can suddenly flick their bodies into the air to avoid capture, are well adapted to this habitat. Their larvae "wireworms" are often pests in arable land feeding on the roots of crops. In the woods six types were collected, the most common being a small one called *Agriotes pallidulus*, and this was especially common at the site in Binsted Wood.

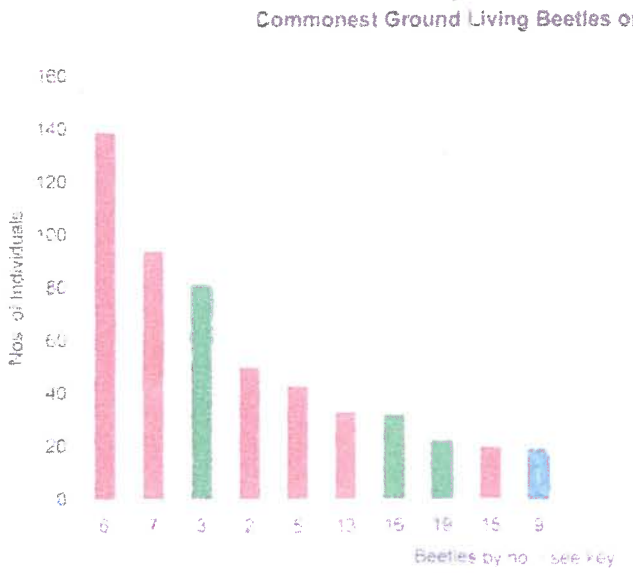
Some small weevils also live in the soil and probably feed on roots, though little is known of their ecology. These were plentiful in the wood at Tortington Common. In fact one species, *Caenopsis waltoni,* was collected in hundreds from the pitfall traps. This was an unexpected find as the literature gives heathland as its habitat. My discovery has added to the sum of knowledge about these small beetles.

A selection of these beetles are illustrated on page v.

As the different sites were chosen because of their differences, it is not surprising that the ground living faunas at the four sites reflect these. Charts (see pages vi and vii) show the numbers of the commonest species at each site. The fauna of the two wooded areas were very different. Tortington Common being much richer in smaller species, feeding on springtail eating species and root eaters, whilst most of the beetles at the Binsted Wood site were large and fed on the molluscan population. Fewer beetles were found on the drier bank in Paynes Wood. Its fauna was similar to the nearby woodland site, with the exception of much larger numbers of one small weevil, *Barypeithes pellucida.* The fauna on the path, unsurprising was the most different. It had the most springtail hunting beetles, including many species of a small rove beetle with huge eyes, *Stenus*, which hunts on wet ground.

A walk on a hot still night in July, when we were hoping to see Stag Beetles flying, revealed another spectacular sight, glow worms. At the lower end of the road leading to Binsted, we saw a multitude of small bright green lights shining by the road and in among the trees. The

Comparison of Ground Beetles at the Different Pitfall Trap Sites (2)



Note different scales on the "y" axes on each chart.

KEY

Red columns are for predatory beetles.
Green columns for root eaters
The species are ranked with the most frequently found first.

Caenopsis waltoni*- weevil	1
Pterostichus madidus*- ground beetle	2
Barypeithes araneiformis*- weevil	3
Nebria brevicollis - ground beetle	4
Abax parallelopepidus - ground beetle	5
Drusilla canaliculata - rove beetle	6
Bembidion guttata - ground beetle	7
Staphylinus olens*- rove beetle	8
Agriotes pallidulus*- click beetle	9
Carabus problematicus*- ground beetle	10
Quedius lateralis - rove beetle	11
Philonthus decorus - rove beetle	12
Quedius curtipennis - rove beetle	13
Notiophilus biguttatus*- ground beetle	14
Othius punctulatus - rove beetle	15
Barypeithes pellucida - weevil	16
Anthobium atrocephalum - rove beetle	17
Staphylinus compressus - rove beetle	18
Anthobium unicolor - rove beetle	19
Othius myrmecophilus - rove beetle	20
Bembidion lampros - ground beetle	21
Bolitobius inclinans - rove beetle	22
* Illustrated	

Beetles Collected from the Owen Emergence Trap

Sinodendron cylindricum

Strangalia maculata

Cylindrinotus laeviostriatus

Clambus pubescens

Pteridium

Ephistemus globosus

Beech from the trap

Euophryum confine

Cypha longicornis

Neuraphes elongatulus

Rhizophagus perforatus

Acrotrichis

Cis nitidus

Aridius nodifer

Ahasverus advena

Cerylon fagi

Lathridius minutus

Cortinicara gibbosa

Atomaria

Tachyporus atriceps

light is produced by the sedentary females to attract mates, and works well, as those picked up were accompanied by several smaller mobile males. These beetles feed on small snails.

BEETLES LIVING IN DEAD TREES

This group, the saproxylic or dead wood beetles, includes the large and famous stag beetle and many colourful and rare species. The living and actively growing tree is able to protect itself from most insect attacks. The bark forms a good barrier and wood itself is impenetrable and indigestible for most organisms. However as trees die, decay sets in, fungi breakdown the wood, opening up opportunities for beetles to exploit. The type of fungi, whether red rot or white rot, and the position of the dying timber provide a variety of different habitats. Many of them are rare in modern woodland. This is discussed below under the heading "Conservation".

Beetle larvae live within the rotting timber. This is a very protected environment with a plentiful but not very nutritious food source. Therefore, development may take several years but the emerging adults tend to be large and showy, like stag and longhorn beetles. The adults have other sources of food. Surprisingly, although the male stag beetle looks very fierce with its large antler-like mandibles, it uses them, like its namesake, to compete for a mate. It actually feeds on tree sap whereas adult longhorns eat flower pollen.

A greater number of species live under the decaying bark, the basis of this food chain is usually the fungi present rather than the tree itself. A much larger range of types of beetles are found here, from many different families, in contrast to the other habitats, described in this report, where species from only one or two families are commonly found. This fact is one of the reasons why it is thought that bark was the home of the ancestral beetle, from which all other groups evolved.

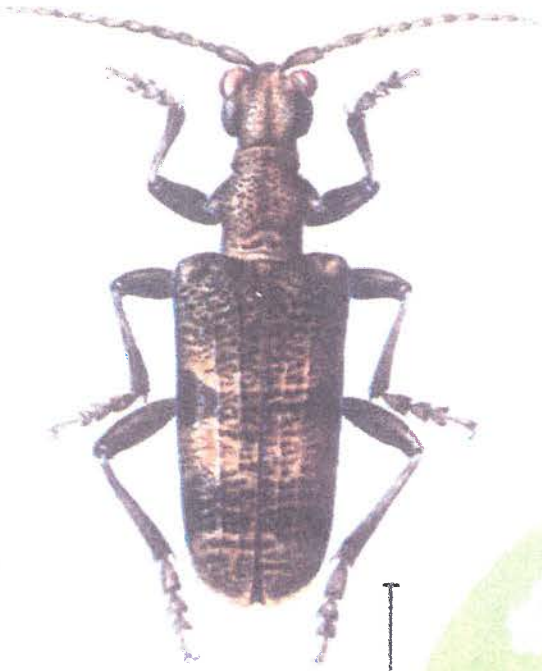
Dead wood habitats are not easy to access and so this group is underrepresented. More work would be rewarded by more species, as indeed was the case when some more collecting was done in June 2006. Altogether 60 species were collected, of which eleven are becoming rarer. I will illustrate this group by describing the beetles, which hatched from the wood in my Owen Emergence trap, and those caught visiting flowers.

Stag beetles were not seen by me in the wood although the gamekeeper, who lives in a cottage in the wood assures me that they are present, hence they are on the list. They are not often seen but fly on warm evenings in early summer. Although I looked for them I was unsuccessful. Two related and quite spectacular beetles, the lesser stag beetle and the Rhinoceras beetle, see below, were found.

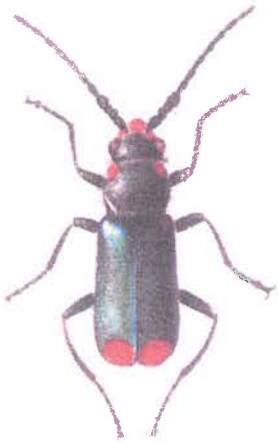
In early May dead wood was collected from the large beech tree at the Binsted Wood site. Some of this came from a large dead branch on the ground and was up to 10cm in diameter and some was sawn from a smaller dying branch. This wood is illustrated on page viii together with a selection of the beetles, which emerged from it. It was placed in the tentlike trap and left in my garden for two months. 106 beetles from 28 different species were collected from the trap at the top. Then this wood was removed and replaced with a similar amount of oak wood, which was left until the end of September. A further 59 beetles emerged, representing 22 species, twelve of them not found on the earlier sample. The reason for the smaller numbers from oak was probably more to do with the time of collection, rather than the suitability of the habitat, as most beetles would have already hatched.

Most of these beetles lived under the bark and were very tiny. The smallest were globular and the slightly larger more elongated and flattened for wriggling through the confined spaces.

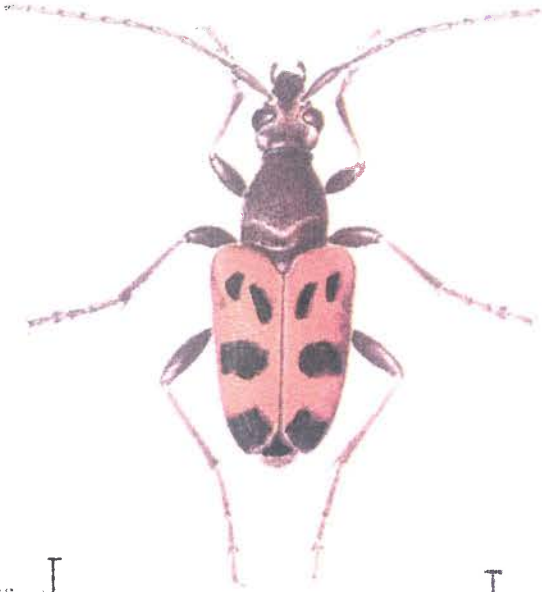
Beetles Seen Visiting Umbels



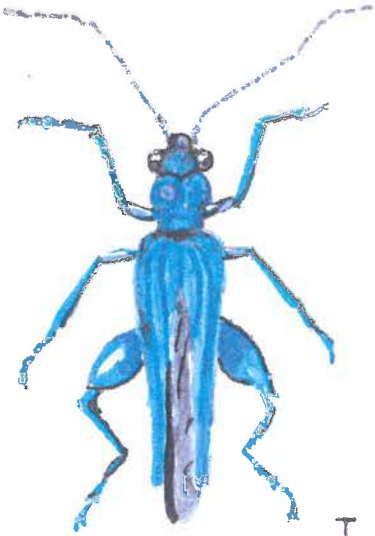
Rhagium mordax



Malachius bipustulatus



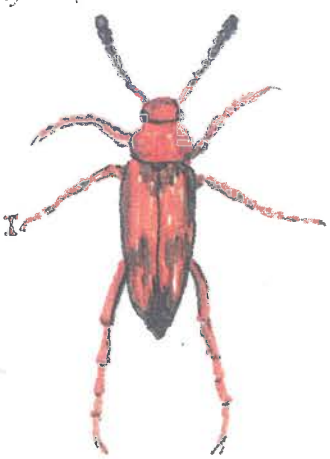
Judolia cerambyciformis



Oedemera nobilis

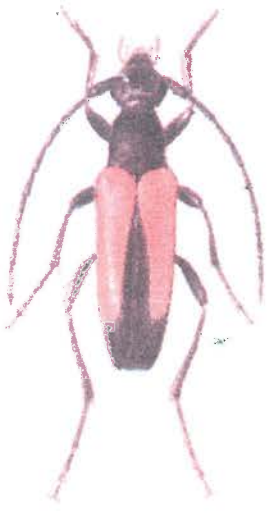
Rhagonycha fulva

Meligethes aeneus

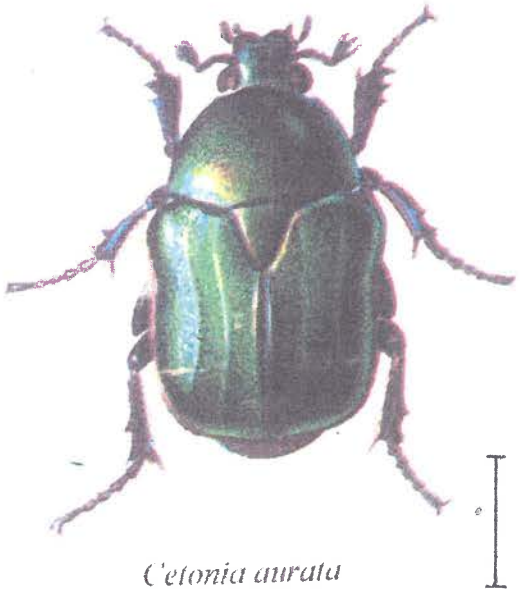


Anthremus verbasci

Anaspis maculata



Strangalia melanura



Cetonia aurata

Most of the really tiny ones feed on fungi, the larger ones are predatory on them. The most interesting of these was one specimen of *Ahasverus advena*, otherwise known as the Foreign Grain Beetle. As its name suggests it is usually found in grain stores and is increasingly common in that location in this country. Many beetles of stored products, like this one, are fungus feeders and are also found under bark, if the climate is warm enough. An example is *Alphitobius diaperinus,* which used to be called the lesser mealworm beetle, it is increasing found in living in trees and an alternative name, black fungus beetle, is becoming more widely used. One specimen of this beetle was found on the bank in a pitfall trap. It could be that the Foreign Grain Beetle is also moving out into the wild in this country as global warming continues. I have not found any British records of this beetle from trees, but there is one continental reference and it is common in woods in Minnesota. However it is turning up in English compost heaps, which would provide a warmer transitional home.

Three other species collected have grubs, which develop in the rotting wood. The Rhinoceras beetle, *Sinodendron cylindricum*, a handsome black armoured beetle about 15mm long, was one of these. It is so called because the male has a large horn on its head. This beetle is unusual in showing some parental care as the male stands guard while the female lays eggs. The larva takes three years to develop. Two specimens of the large black and yellow longhorn beetle, *Strangalia maculata*, also hatched from this wood. This group contains many large and beautiful species, several of them were collected on flowers, see below.

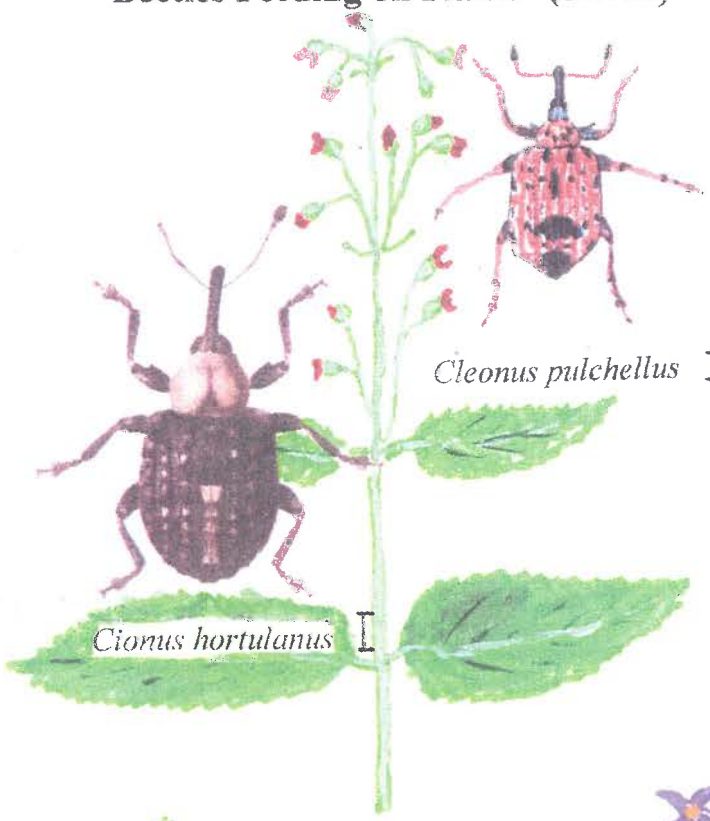
Two other beetles trapped, as well as being remarkable for their long names, are not saproxylic but feed on the outside of living trees. *Propylea quattuordecimpunctata,* 14 spot Ladybird, feeds on aphids and *Cylindrinotus laeviostriatus* may be found at night, grazing on the algae, which grow on the bark.

A good way to collect saproxylic beetles is to watch the insect visitors to flowers on hot sunny summer days. The most popular flowers are umbels, these have white flat umbrella-like flowerheads and are a popular source of pollen and nectar for a wide variety of insects. Many of which are very attractive with bright metallic colouring. Bumble bees, hover flies and others, vie with the beetles for this rich source of food. In this way eleven species of dead wood beetles were found including four species of longhorns and the large emerald green Rose Chafer, *Cetonia aurata*. Not all the visitors are saproxylic, other pollen eaters caught were *Meligethes aeneus,* colloquially known as the pollen beetle, and *Anthrenus verbasci* otherwise known as the carpet or museum beetle. The latter is so called because it can destroy insect collections in museums as well as carpets in modern houses. There are about 50 species of *Meligethes* in this country, all small, black and practically identical. They are distinguished by the pegs on their forelegs, which are sculpted so as to fit the pollen grains of the particular flowers visited. The grubs eat flower parts and so are unpopular with commercial flower producers. I have identified seven different species in these woods.

BEETLES ON LIVING PLANTS

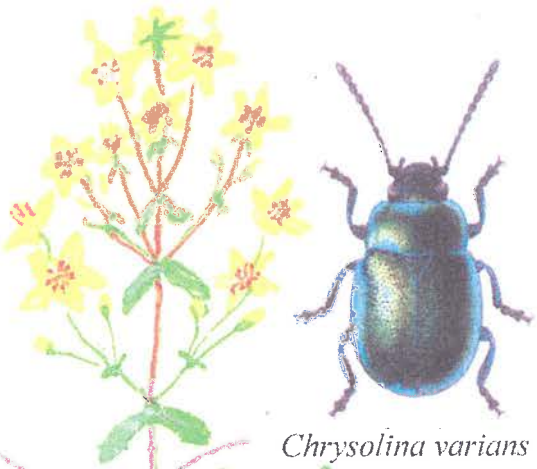
Perhaps the most obvious source of food in the wood is contained in the leaves of the trees and herbaceous plants. However, this is not as available as might be thought. Firstly, plant material is tough and contains cellulose, which few organisms are able to digest. Beetles, with their hard biting mouthparts, are one of the few groups of animals able to chew up this food and release the nutrients. Secondly, many species of plants produce chemicals to make themselves unpalatable or poisonous. Many of these substances have proved themselves useful to humans as medicines. The chemicals produced are often specific to a particular plant or group of plants and specific beetles have evolved which are immune to their effects. Most of the plant-eating beetles, or phytophages, belong to two families, the chrysomelids, or leaf

Beetles Feeding on Plants (Herbs)



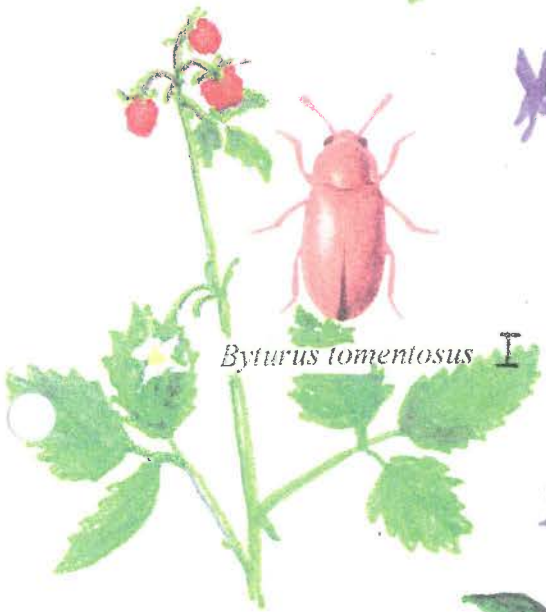
Cleonus pulchellus I

Cionus hortulanus I

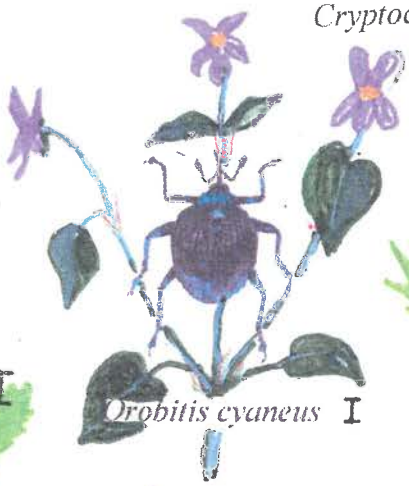


Chrysolina varians I

Cryptocephalus moraei I



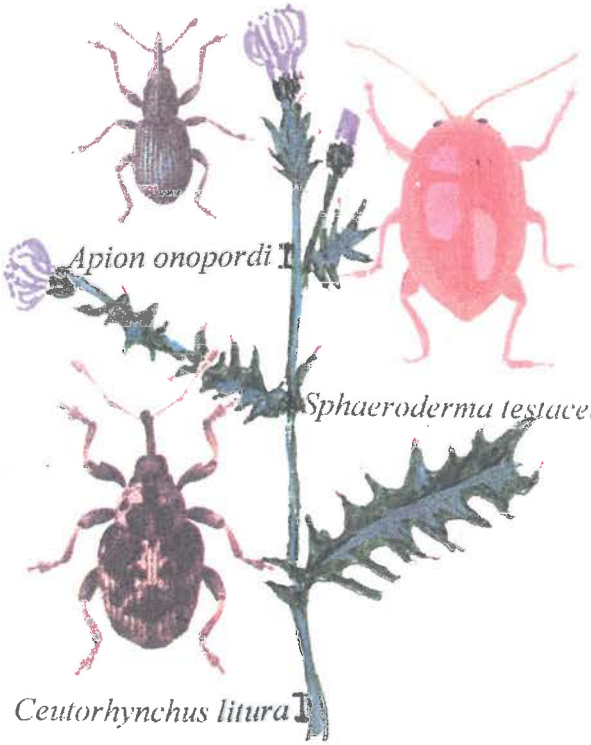
Byturus tomentosus I



Orobitis cyaneus I

Ceutorhynchus melanostictus I

I *Psylloides affinis*



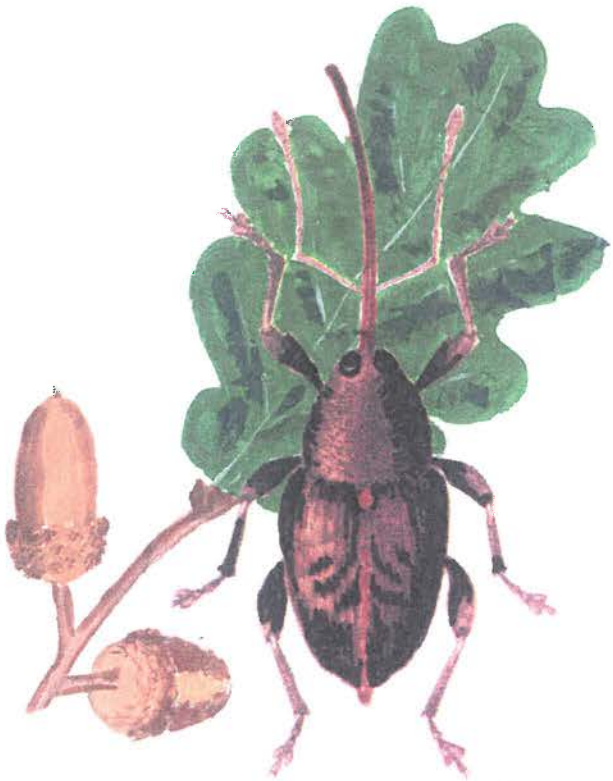
Apion onopordi I

Sphaeroderma testaceum I

Ceutorhynchus litura I

Beetles Feeding on Plants (Trees)

Strophosomus melanogrammus I

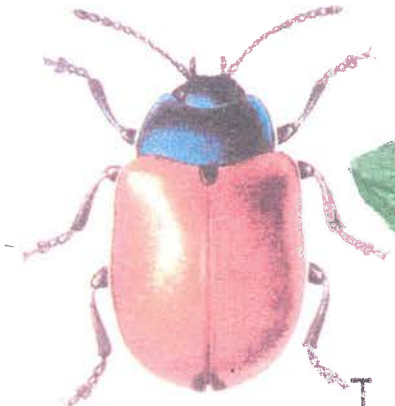


Curculio glandium I

Rhynchaenus salicivorus I

Curculio salicivorus I

Ellescus bipunctatus I



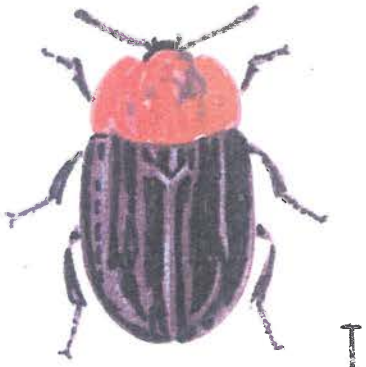
Chrysomela populi I

Crepidodera aurata I

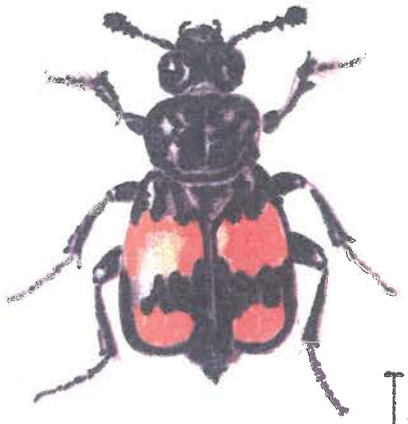
SALLOW WILLOW

Foul Decomposer Beetles

Carrion



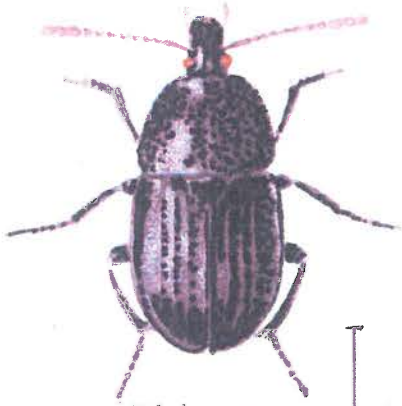
Oiceoptoma thoracica



Nicrophorus vespilloides

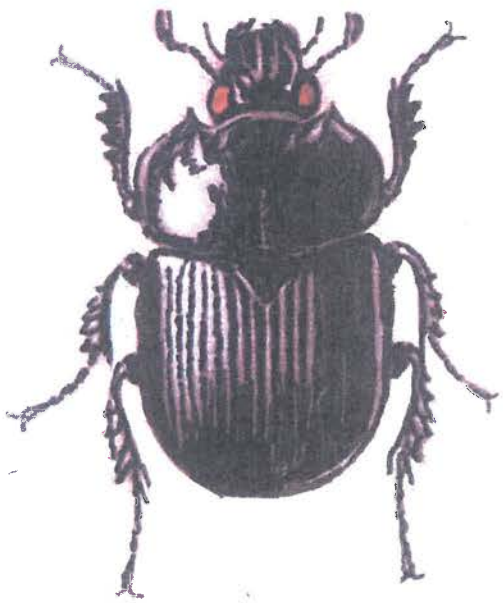
Sciodrepoides watsoni

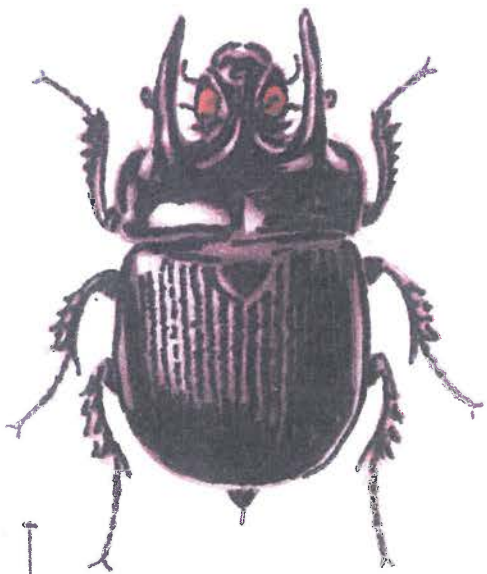
Saprinus semistriatus



Silpha atrata

Dung





♀ *Typhaeus typhoeus* ♂

beetles and curculionids otherwise known as weevils. One hundred different phytophages were collected.

The commonest and most widespread phytophage in these woods is the weevil *Strophosoma melanogrammum*, which feeds on a variety of tree leaves. However most tree foliage, except when very young, is too dry to be very useful as food for beetles. The exception is leaves of trees living in wet conditions such as the willow which has 38 species of leaf eaters associated with it. They are specific to willow as they must be able to deal with the salicyclic acid produced by these trees. This is exploited by humans as aspirin.

Sallow willow grows along side Old Scotland Lane and seven species of leaf eaters were collected from it. They included the scarce weevil, *Ellescus bipunctatus*. These woods have a wide variety of flowering plants within them as has been already noted and this is reflected in the many different species of phytophagous beetles collected. Most of these were caught by sweeping the vegetation. Many of the leaf beetles have beautiful bright metallic colouring and the weevils when seen under a microscope are spangled in minute scales. Another name for a large group of the leaf beetles is flea beetle, so called because they have enlarged hind legs, which enable them to jump when disturbed.

Some of the plant eating beetles found are illustrated on pages x and xi.

CARRION, DUNG AND OTHER BEETLES OF FOUL PLACES

As animals die it is important that their remains are broken down and the nutrients within them reused. Beetles play an important role in this. Sometimes a small mouse would drown in one of the pitfall traps and this would attract a number of sexton beetles to the pot. These beetles are conspicuous and quite large being black and orange. Another carrion beetle *Silpha attrata* was often a frequent casualty in the traps lured by the dead slugs, which collected there. Smaller invertebrate remains provide food for members of the family Catopidae such as *Sciodrepoides watsoni*.

Many carrion beetles are also found in fungi, dung, rotting vegetation and in nests. These places can be summarised as foul. They are smellier and wetter and more ephemeral that the other habitats considered. These foul conditions are a good food source and the beetles that exploit them need to be good fliers, have an acute sense of smell and easily cleanable bodies.

Rotting wet habitats attract flies and many beetles feed on their maggots. In fact most of the beetles living in these foul conditions are not feeding directly on the rotting material but are predatory on those creatures that are. However this is not the case with the dung beetles. Many go to great lengths to ensure a good supply of food for their young and display some parental care. The minotaur beetle, *Typhaeus typhoeus*, is a large heavily armoured scarab beetle, living in these woods. It searches the woods for excrement, whether produced by horse, deer, badger, rabbit or dog, it is not fussy, for although herbivore dung will be more plentiful, carnivore dung contains more nutrients. The parents cooperate to dig a brood chamber, 1 to 1.5 metres below the surface, which is then supplied with dung prior to egg laying. Then, the well-catered for young, are left to develop on their own.

Fifty kinds of beetle from foul habitats were collected and some are illustrated on page xii.

RARE AND INTRODUCED SPECIES

Twenty four species mentioned in the Red Data Book were found. This list is not so much a measure of rarity but of beetles whose habitat is threatened. For definitions see the key to the complete species list at the front of this report. Two other species found in 1975 were not seen

again but given the serendipidous nature of collection this does not mean they are not still present. Indeed, one of these beetles, a large and very showy longhorn, *Strangalia aurulenta*, has been seen in Brandy Hole Copse Chichester in Chichester, but only once. This is despite many visits by entomologists to this Reserve. Several examples of *Variimordella villosa* were found, which is a very close relative of the rarer *Tomoxia bucephala* found in 1975, and has similar habits. Most of the threatened species on this list need either young open woodland or old decaying trees and dead wood both scarce habitats.

The beetle fauna does change over time and some of the species noted in the main textbook, written in 1932, as rare are no longer so and, unfortunately, the opposite situation is even more common. Most commonly decline of numbers is linked directly to decreasing size of habitat. Sometimes changes in beetle faunas equate with changes in agricultural crops, when these are the main food source. Climate change may be responsible as seems to be the case with the two grain pests, *Ahasversus advena* and *Alphitobius diaperinus*. These beetles once found only in the warmer conditions within grain stores now seem able to live in their ancestral homes under bark. Other trends are more difficult to pin down. As well as changes to the endemic fauna, introduced species can spread widely and quickly. In these woods are five species from Australia or New Zealand, three of which have been only found in this country since the 1940s. They were originally imported with timber.

Comparison with other sites

These woods have proved to be very rich in beetle species as well as in other insects and spiders. It is difficult to ascertain their significance and uniqueness without equivalent surveys for comparison. Few surveys have been carried out, the only ones, known to the author, have been in areas of particular interest such as ancient woodland sites. The scale of this survey, which provides some evidence of populations and communities as well as recording species names, is also unusual. My only source of comparison is a two year study of the beetles in a small nature reserve at Brandy Hole Copse, North of Chichester, carried out by the author. Most of the woodland species from Brandy Hole are also found at Binsted, but the latter site has many more species. This is to be expected considering its much greater size. Many more phytophages have been found at Binsted Woods, illustrating the wider range of herbaceous plants present. More saproxylic species and woodland floor ground beetles occur there also. What is surprising, is the lack of ladybirds, nine species were found at Brandy Hole, four on a single afternoon's sweeping, whilst at Binsted only four species were ever seen. Another puzzle is the lack of the woodworm beetle *Anobium punctatum*, or any of its wood boring relatives at Binsted. However, these might be found in the canopy traps, when these are examined.

This survey will provide a useful model for future studies.

Conservation

Modern woodland suffers from a lack of a good mixture of trees at different stages of growth and Binsted Woods are no exception. Although these woods are noteworthy in the extent and variety of the broad-leaved species present, the system of management does not favour beetles, or other more popular insects, such as butterflies. Trees are left to grow close together, the high forest system, so that the woodland floor becomes choked up and too shaded for woodland herbaceous plants. Although dead and diseased branches are not removed for tidiness or safety reasons, as happens in many parks, there is little large dead wood about. This is because of the removal of mature trees for timber and due the cramped nature of their growth the specialised habitats of the rarer saproxylic beetles never have a chance to establish.

When forests formed in this country after the last Ice Age, they were not the impenetrable thickets of legend. Open spaces were created naturally along river valleys, on poor soil, by tree fall and fires. Grazing animals such as auroch, deer, bison and wild boar would have helped to maintain these clearings. Beavers also felled large areas alongside rivers. Trees were of a variety of ages and it has been estimated that dead wood formed about 50% of the total amount of timber. Woodland beetles have been going extinct ever since humans began clearing these forests for agriculture. Never the less practices such as pollarding and grazing cattle and pigs in the woods created similar conditions to the primordial ones. These "pasture woodlands" are rare today. The trees grown in such conditions produce many specialised dead wood habitats. The beetles, which exploit them, are also very slow to colonise new areas. Hence their rarity, which is particularly unfortunate as among them are many that are large and spectacular. Although Binsted Woods may once have been managed like this no trace remains. It is not feasible to recreate these conditions.

Some dead wood beetles are found in Binsted Woods and many more probably are present, awaiting discovery, as this habitat is very hard to access. An index of saproxylic beetles has been created, each beetle on the list is given a rating and the value of the site can be worked out from the total scored. Unfortunately, although beetles were found which are on the list, including some high scoring ones, it was not possible to identify all beetles to species. This involves specialist knowledge. In any case high scores will only be obtained in ancient woodlands, maintained continuously in traditional ways, which does not apply here.

However, this is a good way of improving conditions for wildlife which is much more easily attainable, and that is by opening up the wood. Although it may seem perverse, the spaces that have been created by clearing under cables, by tree felling and by the path Old Scotland Lane, which is wide enough to provide vehicular access to the pipe line running alongside it, are beneficial. The higher light levels encourage a wide variety of woodland flowers. As well as the insects feeding on the vegetative parts, many beetles whose larvae develop in dead wood, feed as adults on nectar and pollen. Woodland glades also attract other more popular insects such as butterflies.

Another improvement could be made by leaving a few mature trees when harvesting a crop of timber. The old beech at the Binsted Wood pitfall trap site, presumably left as a boundary marker, must be invaluable as a breeding ground for saproxylic beetles. There is another ancient tree, an old oak, further down the path at a crossroads. However, these are few and far between. Anything which increases the age range of the trees would be beneficial although the benefits would take many years to become evident.

There is evidence that parts of Binsted Wood was coppiced, as many woodlands were. This not only provided a source of useful timber but also opened up the wood. This is not only beneficial to woodland butterfly species but also to the carabid population as well as to phytophagous beetles (Collins and Thomas 1989). Both the books on insect conservation (in the bibliography on page 28) are enthusiastic about the advantages of coppicing and describe the process in great detail. Today most of the market for coppiced products has been lost and the method is too labour intensive to be worthwhile. However, with increasing interest in renewal energy, this option may well become commercially viable again as a source of fuel. Another ways of opening up the wood is by increasing the wood edge habitat. If large trees are felled beside the roads then shrubs such as hawthorn can grow. These flowers, as well as looking attractive, provide a valuable food source to insects.

Conclusion

This report demonstrates how the four hundred odd species of beetle found during this survey fit into the woodland economy and how some changes in management practices could help to make these woods even more amenable to insects and other wildlife. I hope this work will provide a standard by which to measure change and also serve to educate the public about the wide diversity of nature upon their own doorsteps. Such things are necessary to help to conserve our heritage.

Binsted Woods have proved to be very rich in beetles and other insects, not all of which require traps and microscopes to appreciate. I particularly remember one day, working at Old Scotland Lane, when every time the sun came out, the scene came to life. Orange Pearl Bordered Fritillary butterflies appeared as if from nowhere and flew in drifts up and down the track, White Admirals flitted among the trees, a large dragonfly hunted along the path and black and yellow longhorns were among the myriad of other insects enjoying the sudden warmth. Yet, for the most part, these woods are deserted, their great diversity of insects unknown and unappreciated.

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Identification:-

Several specialist books and papers in addition to
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Ecological and other details:-

Mainly from the computer program
BUGS 2000 – Coleopteran Ecology Version 5 by P. I. Buckland and Yuan Zhuo Don with data by P. C. Buckland. This gives ecological data from a variety of different sources. The species list was also prepared from this source.

Katherine Cave November 2006