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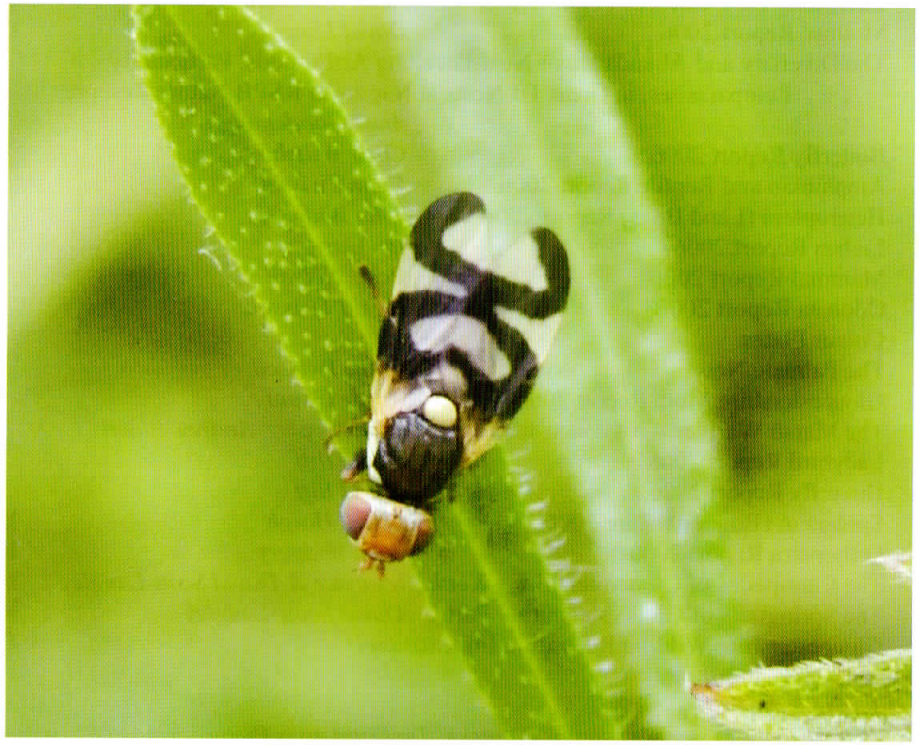

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Editorial

Firstly, I would like to thank all the contributors whose skills with IT and deadline observance made the production of TGN 18 such an easy task.

Once again the various County Recorders have all contributed annual reports, some of them detailing the rapid spread into the county of species that is quite possibly due to global climate change, others reporting on recently refound BAP species in the county, as well as many other interesting records. Colin Twissell has also given us a Profile on the Palmate Newt, Keith Alexander and David Scott-Langley have combined on a review of the Centipedes of Gloucestershire, and this year there are two articles relating to birds. Our Membership Secretary, Andy Bluett has written about Marsh Warblers in Gloucestershire and also Anne Goodenough, a PhD Researcher at the University of Gloucestershire, partly funded by a grant from the Society, has studied the parasites found in Great Tit nests at Nagshead RSPB Reserve.

County recorders and environmental record centres always welcome records of even the common species in order to gain a fuller picture of their current status. For details of recorders and how to record, read the GNS News and/or visit the Society's website at www.glosnats.org.uk. New county recorders are always welcome, however obscure the group. There is now some concern that County Recorders nationally are not getting any younger and that there are few young people following in their footsteps. Taxonomy and whole animal biology, along with field trips have suffered huge cutbacks in recent years from the curriculum at all levels. Like so many false economies the results are beginning to show up. Make use of your County Recorders because before too long they may be a Red Data Book species themselves.

Articles on the county's flora and fauna are always welcome and can be sent to me at the addresses below. There are "Notes for Contributors" on page 138 and a blank page setup can be emailed if requested.

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Notes on Contributors

David Scott-Langley has been GNS county recorder for Myriapods, Isopods, Harvestmen and Pseudoscorpions since 2000 and is currently Chairman of the GNS Scientific & Publications Sub-Committee and of the Society's Cirencester branch. He finds that working in the landscaping industry gives him access to otherwise unavailable sites for recording. He has also published works on the fauna of Foula, Shetland.

David Long has been county recorder for Molluscs since the 1980s, but has been recording land and freshwater molluscs since 1967. He is a Vice-President of the Conchological Society, chaired the Gloucestershire Wildlife Trust's Conservation Committee from 1980 to 1992, and now chairs the Gloucestershire Invertebrate Group. He has published papers on non-marine molluscs and (in one case) marine fossils both in the UK and in Australia.

Keith Alexander is the county recorder for Coleoptera (other than ladybirds), Diptera (other than hoverflies), Sawflies (Hymenoptera: Symphyta) and Barkflies (Psocoptera). He currently lives in Exeter and would be delighted if someone resident in the county would like to take over the baton for recording these insects.

David Haigh was born in Scotland and completed his education in Wales. He started teaching in 1960 in the Midlands and in 1965 came to Cheltenham where he continued to teach until 2002. Since 1967, when he joined the GNS, he has been recording spiders in the county. He is a member of The British Arachnological Society and is Area Organiser for the Spider Recording Scheme.

Mark Kitchen and Clare Kitchen are a husband and wife team who have contributed very substantially to botanical recording since 1981, especially to the north-east of Bristol, their home being near Berkeley. They have jointly acted, since 1993, as Recorders for the Botanical Society of the British Isles for vice-counties 33 (East Gloucestershire) and 34 (West Gloucestershire).

Colin Twissell took over from Peter Burns as Reptile and Amphibian Recorder for Gloucestershire in 1973. He has had a lifelong interest in all aspects of natural history.

Ingrid Twissell has been the Dragonfly recorder for Gloucestershire since 1993, taking over from Sonia Holland. Her interests are not solely confined to this group as she enjoys other facets of the Natural World.

Roger Gaunt was born and educated in Yorkshire. After National Service he trained as a Work Study Engineer, before changing to teaching and moving to Gloucestershire in 1962. He moved to his present address in 1968 and soon became interested in and recording the moths that came to his windows. Soon after taking early retirement he was invited to become moth recorder, in about 1988. He produces an electronic newsletter several times a year, and his 'Gloucestershire Moths - A Second Account' was published in 2006.

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David Iliff was born in Dublin and grew up in southeast England. He moved to Gloucestershire in 1965 and joined the GNS, mainly for bird watching. During the 1970s he became increasingly interested in entomology and was appointed county hoverfly recorder after reviewing a book on the subject for the GNS Journal. He is the editor of the Hoverfly Newsletter which is published twice yearly by the Dipterists Forum. He has been the ladybird recorder since the early 1990s.

Ian Carle became the County Recorder for the newly-formed Lichen Group in 2004. He is also the Data Manager for the Gloucestershire Centre for Environmental Records and as such has been of great help to the Society's other recorders in digitising all their records.

Chris Wiltshire took over as County Butterfly Recorder and area representative for Butterfly Conservation in 2004.

Anne Goodenough is a PhD researcher at the University of Gloucestershire. She began her current research into the dynamics of breeding Blue Tits, Great Tits and Pied Flycatchers at Nagshead RSPB Nature Reserve in 2005, and is particularly interested in the influence of biotic and abiotic factors upon nestbox selection and breeding success. Her research will ultimately be written up as a doctoral thesis.

Andrew Bluett is a Chartered Surveyor born in the Forest of Dean, and is Regional Property Manager for Enterprise Inns plc. He has a general interest in natural history, and birds and their breeding biology in particular. He is Hon. Membership Secretary of GNS and an active member of the BTO and British Butterfly Conservation Society.

John Widgery was born in Hertfordshire and only moved to Gloucestershire in 2006, although involved in biological recording in the County since the mid 1990s. Has had a lifelong interest in natural history. Contributed to the botanical recording of Hertfordshire and Middlesex until the 1970s. Intensively involved in ornithology up to late 1980s during which he ringed over 50,000 birds for the British Trust for Ornithology. Serious involvement with entomology since 1990, he became recorder for Orthoptera and terrestrial Heteroptera in Hertfordshire soon afterwards. Held the position of National Recorder for Orthoptera between 1996 and 2002.

GLOUCESTERSHIRE BOTANY REPORT 2006

Clare and Mark Kitchen

The year should not be allowed to pass without mentioning that it is an incredible twenty years since the publication of Holland, Caddick and Dudley-Smith's Supplement to the Flora of Gloucestershire, a work that many of us still consult on a daily basis.

Change in agricultural practice has often heralded the death knell for many of what have become our rarest arable weeds, so it was pleasing to find Corn Buttercup (*Ranunculus arvensis),* still present at a number of sites which were last visited almost twenty years ago. Indeed it was found to be growing in prodigious quantity at one of these localities. Another arable weed, Cornflower *(Centaurea cyanus)* was reported from a couple of sites. It is often difficult to decide whether or not this showy species, also sometimes known as Bluebottle, makes its appearance due to the agitation of a long undisturbed seed bank or due to the recent introduction of seed either as an accidental crop contaminant or deliberately. Another unusual arable species, the grass Rye Brome *(Bromus secalinus)* is very definitely increasing its range with several new localities reported over the last few years.

Once again as with most previous years' reports, a small number of species are recorded in the county for the first time. It is always interesting to hypothesise on the manner of their introduction. It should seem reasonable to assume that Purple-flowered Cotoneaster, *(Cotoneaster atropurpureus)* discovered in the Forest of Dean, was introduced with the assistance of the wild bird population, the fruits having been ingested in a garden either in Britain or some other corner of the continent.

The case of the annual nettle *Urtica membranacea* would seem rather different. Unknown in Britain until this year, it was first noticed in Warwick town centre shortly to be followed by a record from Storth, Cumbria where it was growing as a weed in a plant pot containing a Sago Palm which was kept indoors. The third British record was here in Gloucestershire in the centre of Cinderford where it is very local but well established. With this species the light seed would be wind borne but it would be unlikely to have travelled all the way from its Mediterranean homelands. What all three localities have in common is horticulture! The plant pot case is obvious but the other two populations are both sheltered town centre localities where the plants grow between pavement and walls in areas protected from the most severe of weather conditions but additionally both of these localities are very close to Florists shops, the probable source of introduction. It would seem likely that this nettle is establishing itself on the back of global warming and it will be interesting to see if it survives the

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winter and spreads farther afield in Cinderford. (Ref BSBI News no 103, Sept 2006 p29-30)

Water-soldier *(Stratiotes aloides,)*, not native in our county, was probably introduced as an aquarium throw-out although there is a chance that waterfowl may be implicated. It is seldom recorded in Gloucestershire but was present in its new locality in hundreds and possibly even thousands.

Occasionally species which have in the past been native in the county but become extinct are recorded after an absence of many years. Pennyroyal *(Mentha pulegium),* discovered at the Cotswold Water Park, is one such species having not been recorded in the county for over seventy years. Again this may have been introduced on the feet of waterfowl. Generally Pennyroyal seems to be increasing with several new lakeside localities reported recently in southern England.

Finally, three native species of restricted occurrence in the county were reported during the year. The first, the grass Lesser Hairy-brome *(Bromus benekenii)* was recorded from Symonds Yat, the first record west of the Severn since before 1946. It is a difficult species to identify and is probably often overlooked. Mousetail *(Myosorus minimus)*, however, genuinely appears to be increasing its range of distribution. It is found in the Severn floodplain and should be looked for in any areas there which lie under water during the winter. Access to RAF Fairford turned up Lesser Centaury *(Centaurium pulchellum)* a species which, though regularly recorded at a number of Forest of Dean sites, has very rarely been reported from the east of the county.

The Recorders

The names of contributors have been abbreviated as follows:

Bailey J.A.	JAB	Knight T.D.	TDK
Ball A.R.	ARB	Laney B.	BL
Bishop S.H.	SHB	Martin J.P.	JPM
Broughton D.	DB	Mayled A.	AM
Butters C.	CB	Meredith G.H.J.	GHJM
Button M.R.	MRB	Meredith S.	SM
Clement E.J.	EJC	Poland J.	JP
Corney P.M.	PMC	Reade P.	PR
Doe J.R.	JRD	Rees JS	JSR
Fryer J.	JF	Rich T.C.G.	TCGR

Glos Nats Soc.	GNS	Ryves T.B.	TBR
Haigh D.	DH	Santschuk J.	JSa
Harris G.	GH	Spencer J.	JS
Janninck M.	MJ	Stanley M.	MS
Kitchen C.	CK	Westgate R.	RW
Kitchen M.A.R.	MARK	Widgery J.	JW

The Records

Unless otherwise stated all records lie within the administrative county of Gloucestershire. Nomenclature follows the Vice-county Census Catalogue of the Vascular Plants of Great Britain (Stace, Ellis, Kent and McCosh, 2003), with English plant names taken from C. A. Stace's "New Flora of the British Isles", second edition 1997.

* An asterisk denotes a species not native to the county.

Equisetum telamateia Ehrh., Great Horsetail. V-c 34. Crabtreehill Plantation, Cinderford C.P., SO61L. 02/07/2006 (PR).

Ophioglossum vulgatum L., Adder's-tongue. V-c 33. RAF Fairford, Kempsford C.P., SU19U. 17/06/2006 (CK and MARK). About ten plants in a square metre patch.

Asplenium adiantum-nigrum L., Black Spleenwort. V-c 34. Blaisdon, Blaisdon C.P., SO71D. 22/01/2006 (CK and MARK). Several on wall by war memorial.

Aquilegia vulgaris L., Columbine. V-c 34. Near the Dilke Hospital, Cinderford C.P., SO61L. 02/07/2006 (PR).

Ceratophyllum demersum L., Rigid Hornwort. V-c 34. Near Demesne Wood, Tibberton C.P., SO72Q. 12/10/2006 (JPM). In pond.

Helleborus foetidus L., Stinking Hellebore. V-c 34. Moorwood, Lydbrook C.P., SO61D. March 2002 (CK and MARK). Five flowering plants. Puddlegrove Quarry,Drybrook, Drybrook C.P., SO61P. 25/02/2006 (CK and MARK). Single flowering plant by quarry entrance.

**Nigella damascena* L., Love-in-a-mist. V-c 33. Podsmead, Gloucester, SO81H. 19/11/2006 (CK and MARK). Abundant along hedge base near housing estate.

Ranunculus arvensis L., Corn Buttercup. V-c 33. Aston Subedge, Aston Subedge C.P., SP14F. 18/06/2006 (CK and MARK). Present in four fields including many hundreds of plants in a set-aside field. Coates, Coates C.P., SO90Q. 23/06/2006 (CK

and MARK). Two fruiting plants in field corner. Knightsbridge, Elmstone Hardwicke C.P., SO82Y. 25/06/2006 (CK and MARK). Three plants in corner of bean field. Confirms continued existence at these three localities known to SHB and recorded there some fifteen years or so ago.

Ranunculus baudotii Godr., Brackish Water-crowfoot. V-c 34. Berkeley Nuclear Laboratories, Ham and Stone C.P., ST69P. 17/05/2004 (JRD). Abundant in brackish ditch in saltmarsh.

Ranunculus penicillatus (Dumort.) Bab. subsp *pseudofluitans* (Syme) S. Webster, Stream Water-crowfoot. V-c 33. South of Ampney Crucis, Ampney St. Mary C.P., SP00Q and South of Ampney St. Peter, Ampney St. Mary C.P. and Ampney St. Peter C.P., SP00V. West of Down Ampney, Down Ampney C.P., SU09Y. All 23/05/2006 (DB). Along the Ampney Brook.

Myosurus minimus L., Mousetail. V-c 34. Ashleworth Ham, Hasfield C.P., SO82I. 03/05/2006 (JAB). More than a thousand plants in field gateway. 04/05/2006 (CB). More than a thousand plants in two additional field gateways. (see Plate 19.)

Thalictrum minus L., Lesser Meadow-rue. V-c 33. Field Barn, Baunton C.P., SP00H. 08/08/2006 (JRD). Still present at this site which was listed in the Supplement.

Berberis vulgaris L., Barberry. V-c 33. Coberley, Coberley C.P., SO91N. 04/11/2006 (GHJM and SM). Three bushes in hedge very close to the previously known single plant. V-c 34. Crabtree Hill, Cinderford C.P., SO61G. 02/07/2006 (PR) and 15/10/2006 (GHJM). Single plant in old boundary.

Urtica membranacea Poir. V-c 34. Cinderford, Cinderford C.P., SO61L. 09/12/2006 (CK and MARK, conf EJC). First county and vice-county record.

Chenopodium bonus-henricus L., Good-King- Henry. V-c 33. The Bratches, Withington C.P., SP01M. 30/07/2006 (CK and MARK). Single plant on road verge

Chenopodium polyspermum L., Many-seeded Goosefoot. V-c 33.Little Haresfield Farm, Standish C.P., SO80E. 05/10/2006 (JAB).

Chenopodium ficifolium Sm., Fig-leaved Goosefoot. V-c 33.Little Haresfield Farm, Standish C.P., SO80E. 05/10/2006 (JAB). V-c 34. Stowe Green, Newland C.P., SO50T. 16/07/2006 (CK and MARK). Several on field muck heap.

**Bassia scoparia* (L.) Voss, Summer-cypress. V-c 33. M5 motorway from north bound exit for junction 11A extending all the way back south along central reservation to at least junction 12. 14/09/2006 (JPM). First V-c record.

Cerastium arvense L., Field Mouse-ear. V-c 33. Condicote, Condicote C.P., SP12N. 20/04/2006 (CK and MARK). Good patch on road verge.

Spergularia marina (L.) Griseb., Lesser Sea-spurrey. V-c 33. Upham Meadow, Twyning C.P., SO93D. 12/06/2005 (CK and MARK). Abundant and dominant by River Avon below M5 Motorway bridge.

Polygonum rurivagum Jordan ex Boreau, Cornfield Knotgrass. V-c 33. Cassey Compton, Withington C.P., SP01M. 30/07/2006 (CK and MARK). Several in recently ploughed field

Rumex maritimus L., Golden Dock. V-c 33. North end of Long Pool, Coombe Hill Nature Reserve, Deerhurst C.P., SO82T. 02/09/2006 (JAB).

Sagina nodosa (L.) Frenzl., Knotted Pearlwort. V-c 33. Cleeve Common, Southam C.P., SO92Y. 20/08/2005 (MRB). Four plants.

Hypericum x desetangsii Lamotte = *H. maculatum* Crantz *x H. perforatum* L., Des Etang's St. John's-wort. V-c 33. RAF Fairford, Kempsford C.P., SU19P. 06/08/2006. (CK and MARK). Single plant.

Tilia cordata Miller, Small-leaved Lime. V-c 34. Crabtree Hill, Cinderford C.P., SO61G. 02/07/2006 (PR).

**Barbarea verna* (Miller) Asch., American Winter-cress. V-c 33.Little Haresfield Farm, Standish C.P., SO80E. 15/05/2006 (JAB). Garden escape.

Cardamine amara L., Large Bitter-cress. V-c 34. Frome Banks Nature Reserve, Rodborough C.P., SO80M. 15/05/2006 (JAB).

Erophila glabrescens Jord., Glabrous Whitlowgrass. V-c 33. Condicote, Condicote C.P., SP12P. 20/04/2006 (CK and MARK). On wall with *E. verna*.

Cochlearia anglica L., English Scurvygrass. V-c 34. Near Guscar Rocks, Woolaston C.P., ST59Z. 10/05/2006 (JAB).

Thlaspi perfoliatum L., Perfoliate Penny-cress. V-c 33. Bowman's Hay, Upper Slaughter C.P., SP12K. 10/04/2006 (MJ and PS). Hundreds of plants.

Calluna vulgaris (L.) Hull, Heather. V-c 34. Kensleyridge Enclosure, Cinderford C.P., SO61G. 02/07/2006 (PR).

Monotropa hypopitys L., Yellow Bird's-nest. V-c 33. Welsh Way, Perrot's Brook, Baunton C.P., and North Cerney C.P., SP00I. 08/08/2006 (JRD). Two colonies.

**Cyclamen hederifolium* Aiton, Cyclamen. V-c 33. Taddington, Cutsdean C.P. and Stanway C.P., SP03V. 25/05/1998 (CK and MARK) and 04/10/2006 (JW). Extensively naturalised along sunken green lane.

Anagallis tenella (L.) L., Bog Pimpernel. V-c 34. Kensleyridge Enclosure, Cinderford C.P., SO61G. 02/07/2006 (PR).

Samolus valerendi L., Brookweed. V-c33. RAF Fairford, Kempsford C.P., SU19P. 06/08/2006. (CK and MARK). Abundant along lake edge. V-c 34. Frampton Pits, Frampton-on-Severn C.P., SO70N. 18/07/2006 (JAB).

Chrysosplenium alternifolium L., Alternate-leaved Golden-saxifrage. V-c 34. Woodchester Park, Woodchester C.P., SO80F. 04/04/2006 (DH). Scattered along north bank of Kennel Pond.

Sanguisorba officinalis L., Great Burnet. V-c 34. Ashleworth Ham Nature Reserve, Ashleworth C.P.and Hasfield C.P., SO82H. 17/08/2006 (JAB). In two fields.

**Rosa rugosa* Thunb. ex Murray, Japanese Rose. V-c 33. Hill Barn Farm, Snowshill C.P., SP13B. 29/04/2006. (CK and MARK). Single bush by edge of back-filled quarry.

**Prunus cerasifera* Ehrh., Cherry Plum. V-c 33. Draycott, Blockley C.P., SP13X. 01/04/2006. (CK and MARK). Several by stream.

**Prunus cerasus* L., Dwarf Cherry. V-c 34. Little Bulley Wood, Churcham C.P., SO71U. 12/10/2006 (JPM).

Sorbus torminalis (L.) Crantz, Wild Service-tree. V-c 33. Oakley Wood, Cirencester C.P., SO90S. 27/01/2006. (CK and MARK). Fallen leaves found by Daglingworth Cross-roads.

**Cotoneaster atropurpureus* Flinck and Hylmö, Purple-flowered Cotoneaster. V-c 34. Ruardean Woodside, Ruardean C.P., SO61I. 26/11/2006 (CK and MARK det JF). Several bushes along roadside at wood edge by disused mine spoil heap. First county and vice county record.

**Cotoneaster sternianus* (Turrill) Broom, Sterns' Cotoneaster. V-c 34. Cowcombe, Minchinhampton C.P., SO90B. 23/06/2006. (CK and MARK det JF).

Crataegus x media Bechst. = *C. monogyna x C. laevigata*, Midland Hawthorn. V-c 33. Todenham, Todenham C.P., SP23M & N. 28/10/2006. Coombe Hill NR, Leigh C.P., SO82T. 22/09/2006. (JAB). Single bush in hedge line in the southern meadows.

Lotus glaber Mill., Narrow-leaved Bird's-foot-trefoil. V-c 33. RAF Fairford, Kempsford C.P., SU19N, P & U. 17/06/2006. (CK and MARK). Abundant and widespread on the airfield. V-c 34. Stowe Green, Newland C.P., SO50T. 16/07/06 (CK and MARK). Plentiful along trackside above edge of active quarry.

Lathyrus nissolia L., Grass Vetchling. V-c 33. Cheltenham, SO92A. 05/06/2006. (RW). Several on recently disturbed ground behind B & Q superstore.

Trifolium subterraneum L., Subterranean Clover. V-c 33. Upham Meadow, Twyning C.P., SO93D. 12/06/2005. (CK and MARK). Plentiful beside M5 Motorway. Third extant V-c locality.

Genista tinctoria L. subsp *tinctoria,* Dyer's Greenweed. V-c 33. Doverow Hill, Stonehouse C.P.,SO80C. 13/06/2006. (CK and MARK). Abundant on top of marlstone cap along rim of former brickworks quarry.

**Fuchsia magellanica* Lam., Fuchsia. V-c34. Nailbridge, Cinderford C.P., SO61N. 05/11/2006 (CK and MARK). Two plants along wood edge across road from housing. First county and V-c record.

Euphorbia platyphyllos L., Broad-leaved Spurge. V-c33. Knightsbridge, Elmstone Hardwicke C.P., SO82Y. 25/06/2006. (CK and MARK). Two plants in wheatfield.

Euphorbia exigua L., Dwarf Spurge. V-c 33. Knightsbridge, Elmstone Hardwicke C.P., SO82Y. 25/06/2006. (CK and MARK). Three plants in wheatfield. Near Perrott's Brook, Baunton C.P., SP00H. 12/07/2006 (MRB). Wheatfield.

Frangula alnus Miller, Alder Buckthorn. V-c 34. Kensleyridge Enclosure, Cinderford C.P., SO61G. 02/07/2006 (PR).

Geranium columbinum L., Long-stalked Crane's-bill. V-c 33. Barnsley Warren, Coln St. Dennis C.P., SP00N. 12/08/2006 (CK and MARK). Cut wheatfield. RAF Fairford, Kempsford C.P., SP19P. 06/08/2006 (CK and MARK). Single plant by trackside.

Berula erecta (Hudson) Cov., Lesser Water-parsnip. V–c 33. South of Ampney Crucis, Ampney St. Mary C.P., SP00Q and South of Ampney St. Peter, Ampney St. Mary C.P., and Ampney St. Peter C.P., SP00V, Both 23/05/26 (DB). Along the Ampney Brook.

Oenanthe silaifolia M. Bieb., Narrow-leaved Water-dropwort. V-c 34. Tibberton Meadows, Tibberton C.P., SO72L. 07/06/2006 (JPM). Single patch by ditch.

Petroselinum segetum (L.) Koch, Corn Parsley. V-c 33. Near Perrott's Brook, Baunton C.P., SP00H. 12/07/2006 (MRB). Several plants. V-c 34. Hullasey Grove, Coates C.P., ST99U. 06/08/2006 (CK and MARK). Abundant in wheatfield.

Sison ammonum L., Stone Parsley. V-c 34. Tibberton Meadows, Tibberton C.P., SO72R. 07/06/2006 (JPM).

**Falcaria vulgaris* Bernh., Longleaf. V-c 33. Near Perrott's Brook, Baunton C.P., SP00H. 12/07/2006 (MRB). Still present in good quantity at this known locality.

**Heracleum mantegazzianum* Sommier & Levier, Giant Hogweed. V-c 33. Dovedale, Blockley C.P., SP13M. 10/06/2006 (CK and MARK). Good numbers of young plants along woodland track.

Torilis nodosa (L.) Gaertner, Knotted Hedge-parsley. V-c 33. Barnsley Warren, Coln St. Dennis C.P., SP00N. 12/08/2006. (CK and MARK). Large patch RAF Fairford, Kempsford C.P., SU19T & U. 17/06/2006. (CK and MARK). Three plants by edge of runway.

Centaurium pulchellum (Sw.) Druce, Lesser Centaury. V-c 33. RAF Fairford, Kempsford C.P., SP19P. 06/08/2006. (CK and MARK). Second record in the area since 1910.

Atropa belladonna L., Deadly Nightshade. V-c 33. Buckle Wood, Brimpsfield C.P., SO91B. 10/09/2006 (JAB).

**Nicandra physaloides* (L.) Gaertner, Apple-of-Peru. V-c 33. Near the Grove, Whitminster C.P., SO70T. 22/09/2006. (CK and MARK). Single plant on disturbed road verge.

Hyoscyamus niger L., Henbane. V-c 33. Stonehouse, Stonehouse C.P., SO80X. July 2005 (JSR). Single plant on disturbed soil on north side of A419.

**Datura stramonium* L., Thorn-apple. V-c 33.Little Haresfield Farm, Standish C.P., SO80E. 25/08/2006 (JAB). Single plant in vegetable patch.

Nymphoides peltata Kuntze, Fringed Water-lily. V-c 33. Campden House, Chipping Campden C.P., SP13I. 14/06/2006. (CK and MARK). Well naturalised in two lakes in the house grounds.

**Phacelia tanacetifolia* Benth., Phacelia. V-c 33. Laverton Meadow Farm, Buckland C.P., SP03N. 18/06/2006 (JRD, CK and MARK). Four plants on farm wasteland.

Symphytum tuberosum L., Tuberous Comfrey. V-c 33. Lark Wood, Temple Guiting C.P., SP12D. 07/04/2005 (MRB, CK and MARK). Abundant along woodland track. First District 7A record and new 10km square.

**Symphytum grandiflorum* DC., Creeping Comfrey. V-c 33. Aston Magna. Blockley C.P., SP13X. 01/04/2006. (CK and MARK). Well established on two opposite road banks in the village.

**Brunnera macrophylla* (Adams) I.M. Johnston, Great Forget-me-not. V-c 33. Broadwell, Broadwell C.P., SP12Y. 07/04/2005 (MRB, CK and MARK). Single plant in a roadside coppice.

Myosotis scorpioides L., Water Forget-me-not. V-c 33. South of Ampney Crucis, Ampney St. Mary C.P., SP00Q and south of Ampney St. Peter, Ampney St. Mary C.P. and Ampney St. Peter C.P., SP00V. Both 23/05/2006 (DB). Along the Ampney Brook.

Stachys arvensis (L.) L., Field Woundwort. V-c 34. Stowe Green, Newland C.P., SO50T. 16/07/06 (CK and MARK). Single plant in field stripped of top-soil prior to quarrying.

Lamium hybridum Villars, Cut-leaved Dead-nettle. V-c 33, (Worcesterhire). Welford-on–Avon, Welford-on–Avon, C.P., SP15L. 03/06/2006 (CK and MARK). Five plants in corner of bean field.

Marrubium vulgare L., White Horehound. V-c 34. Near Bradley Hill Farm House, Holly Tuft, Ruspidge C.P., SO60U. 06/12/1998 (CK and MARK). New tetrad.

Mentha pulegium L., Pennyroyal. V-c 33. Cotswold Water Park, South Cerney C.P., SU09T. 07/07/2006 (PMC). One metre patch growing in grassland at the lake edge in a residential estate. Not native here and possibly introduced on the feet of wildfowl.

**Verbascum blattaria* L., Moth Mullein. V-c 34. Highleadon, Rudford C.P., SO72R. 14/09/2006 (JPM). Single white flowered plant by road verge.

**Scrophularia vernalis* L., Yellow Figwort. V-c 34. Bradley, Wotton-under-edge C.P., ST79L. 13/05/2006 (CK and MARK). A single flowering plant in the wall near the Pump House. First post-1970 record.

Chaenorhinum minus (L.) Lange, Small Toadflax. V-c 33. Barnsley Warren, Coln St. Dennis, SP00N. 12/08/2006 (CK and MARK). Abundant in cut wheatfield. Near Perrott's Brook, Baunton C.P., SP00H. 12/07/2006 (MRB) and 1/08/2006 (CK and MARK). V-c 34. Coates, Coates C.P., SO90Q. 16/07/2006 (JAB). Stowe Green, Newland C.P., SO50T. 16/07/2006 (CK and MARK). Abundant in field stripped of top-soil prior to quarrying.

Kickxia elatine (L.) Dumort, Sharp-leaved Fluellen. V-c 33. Barnsley Warren, Coln St. Dennis C.P., SP00N. 12/08/2006 (CK and MARK). In cut wheatfield. RAF Fairford, Kempsford C.P., SU19P. 06/08/2006 (CK and MARK). Two plants in disturbed area of grassland. Pillows Green, Corse C.P., SO72Z. 23/07/2006 (CK and MARK). Several in cut rape field. V-c 34. Next to Collinpark Wood, Pauntley C.P., SO72P. 05/08/2006 (JAB). North of Little Bulley Wood, Churcham C.P., SO72Q. 29/07/2006 (CK and MARK). Oldbury on the Hill, Didmarton C.P., ST88E. 08/09/2006 (JPM). Stowe Green, St. Briavels C.P., SO50T. 16/07/2006 (CK and MARK). Several in corner of rape field. Wick Court, Arlingham C.P., SO71F. 09/08/2006 (CK and MARK). Good quantity in maize field.

Kickxia spuria (L.) Dumort, Round-leaved Fluellen. V-c 33. Barnsley Warren, Coln St. Dennis C.P., SP00N. 12/08/2006 (CK and MARK). Abundant in cut wheatfield. RAF Fairford, Kempsford C.P., SU19P. 06/08/2006 (CK and MARK). On disturbed area in grassland. Horcott Hill, Kempsford C.P., SU19P, T & U. 17/06/2006 (CK and MARK). Abundant. Near Perrott's Brook, Baunton C.P., SP00H. 12/07/2006 (MRB). In wheatfield. V-c 34. Coates, Coates C.P., SO90Q. 06/0/8/2006 (CK and MARK). Three plants in wheatfield. Also ST99U. 16/07/2006 (JAB). Wick, Court,

Arlingham C.P., SO71F. 09/08/2006 (CK and MARK). Good quantity in maize field.

Orobanche hederae Duby, Ivy Broomrape. V-c 33. Rope Walk, Thrupp, Thrupp C.P., SO80R. July 2005 (JSR). Three stems at base of shady wall not refound in 2006.

Orobanche minor Smith, Common Broomrape. V-c 33. RAF Fairford, Kempsford C.P., SU19T. 17/06/2006 (CK and MARK). West of Leasow Furlong, Sherborne C.P., SP11T. 27/07/2006 (CK and MARK). Abundant along road verges.

Campanula glomerata L., Clustered Bellflower. V-c 33. Next to Dry Hill Wood, Thrupp C.P., SO80S. 23/07/2006 (JAB).

Legousia hybrida (L.) Delarbre, Venus's-looking-glass. V-c 33. . Barnsley Warren, Coln St. Dennis C.P., SP00N. 12/08/2006 (CK and MARK). In cut wheatfield. Near Perrott's Brook, Baunton C.P., SP00H. 12/07/2006 (MRB). In wheatfield.

Valerianella dentata (L.) Pollich, Narrow-fruited Cornsalad. V-c 33. Barnsley Warren, Coln St. Dennis C.P., SP00N. 12/08/2006 (CK and MARK). In cut wheatfield. NE of Baunton, Baunton C.P., SP00H. 12/08/2006 (CK and MARK). Three plants in wheatfield. Near Perrott's Brook, Baunton C.P., SP00H. 12/07/2006 (MRB). In wheatfield. Wood's Barn, Temple Guiting C.P., SP12C. 28/10/2006 (CK and MARK). V-c 34. Hullasey Grove, Coates C.P., ST99U. 06/08/2006 (CK and MARK). Abundant in corner of wheatfield.

**Onopordum acanthium* L., Cotton Thistle. V-c 33.Little Haresfield Farm, Standish C.P., SO80E. 18/06/2006 (JAB).

**Centaurea montana* L., Perennial Cornflower. V-c 33. Park Plantation, Bourton-on-the-Hill C.P., SP13R. 10/06/2006 (CK and MARK). Single plant on road verge by copse.

Centaurea cyanus L., Cornflower. V-c 33. Horcott Hill, Kempsford C.P., SU19P & U. 17/06/2006 (CK and MARK). In set-aside. Near Northfield Copse, Sherborne C.P., SP11S. 21/07/2006 (AM). Two plants in wheatfield undergoing organic conversion.

**Conyza sumatrensis* (Retz.) E. Walker, Guernsey Fleabane. V-c 33. Linden, Gloucester, SO81I. 19/11/2006 (CK and MARK). In industrial estate. V-c 34. Lydney, Lydney C.P., SO60G. 12/03/2006 (CK and MARK).

Chrysanthemum segetum L., Corn Marigold. V-c33. Horcott Hill, Kempsford C.P., SU19P. 17/06/2006 (CK and MARK). Single plant in set-aside field.

Bidens tripartita L. Trifid Bur-marigold. V-c 33. Coombe Hill Nature Reserve, Leigh C.P., SO82T. 22/09/2006 (JAB).

Butomus umbellatus L., Flowering Rush. V-c 34. Ashleworth Ham Nature Reserve, Ashleworth C.P, SO82H. 19/07/2006 (JAB).

Stratiotes aloides L., Water-soldier. V-c 34. Near Demesne Wood, Tibberton C.P., SO72Q. 29/07/2006 (CK and MARK) and 12/10/2006 (JPM). Abundant in pond.

**Arum italicum* Mill. subsp. *italicum,* Italian Lords-and-Ladies. V-c 33. Grove Hill, Daglingworth C.P., SO90X. 14/01/2006 (CK and MARK). A few plants along wood edge.

Spirodela polyrhiza (L.) Schleiden, Greater Duckweed. V-c 34. Near Demesne Wood, Tibberton C.P., SO72Q. 12/10/2006 (JPM). In pond.

Lemna trisulca L., Ivy-leaved Duckweed. V-c 34. Bulley, Churcham C.P., SO71U. 29/07/2006 (CK and MARK). In pond.

**Lemna minuta* Kunth, Least Duckweed. V-c 34. Near Demesne Wood, Tibberton C.P., SO72Q. 29/07/2006 (CK and MARK) and 12/10/2006 (JPM). In pond. Second county and VCR having previously been recorded in a pond at Avon Wildlife Trust visitor centre, Willsbridge, Bristol in 1996.

Juncus subnodulosus Schrank, Blunt-flowered Rush. V-c 33. RAF Fairford, Kempsford C.P., SU19P. 06/08/2006 (CK and MARK). Good quantity along lake edge.

Eleocharis acicularis (L.) Roemer and Schultes, Needle Spike-rush. V-c 7 (Gloucesterhire). Cotswold Water Park, Somerford Keynes C.P., SU09 G and I. Lake 57, 08/09/2006 and Lake 85b 08/10/2006 (Both GH).

Bolboschoenus maritimus (L.) Palla, Sea Club-rush. V-c 34. Berkeley Nuclear Labs., Ham and Stone C.P., ST69P. 17/05/2004 (JRD) Brackish ditch on saltmarsh.

Carex paniculata L., Tussock Sedge. V-c 33. Dovedale Plantation, Blockley C.P., SP13R. 10/06/2006 (CK and MARK). Eight tussocks plus two dead ones.

Carex strigosa Hudson, Thin-spiked Wood-sedge. V-c 33. Cleevely Wood, Shipton C.P., SP01I. 10/04/2006 (MJ and PS). Seven plants. V-c 34. Copse near Horton, Horton C.P., ST78L. 12/03/2006 (MJ and BL).

Carex distans L., Distant Sedge. V-c 34. Berkeley Nuclear Labs., Ham and Stone C.P., ST69P. 17/05/2004 (JRD). A few plants in saline grassland.

**Bromus secalinus* L., Rye Brome. V-c 33. Maisemore Ham, Maisemore C.P., SO82A. 29/10/2006 (CK and MARK). Several plants along edge of rape field. V-c 34. Bulley, Churcham C.P., SO71U. 29/07/2006 (CK and MARK). Stowe Green, St Briavels C.P., SO50T. 16/07/2006. (CK and MARK). Abundant along the edge of a maize field.

Bromopsis benekenii (Lange) Holub, Lesser Hairy-brome. V-c34. Symonds Yat, English Bicknor C.P., SO51S. 06/07/2006 (TCGR and JS). Single clump with *Bromopsis ramosa.* First record in District 4 since that of E. Milne-Redhead in 1946. (See the Supplement).

**Bromopsis inermis* (Leysser) Holub., Hungarian Brome. V-c 33. N of Stonehouse, Standish C.P., SO80D. 08/08/2006 (JAB det MARK conf TBR). 5m x 3m road edge patch on B4008. V-c 34. Near Glebe Barn Farm, Didmarton C.P., ST88J. 12/09/2006 (CK and MARK det MARK conf TBR). 2m x 1m road verge patch.

**Anisantha diandra* (Roth.) Tutin ex Tzveler, Great Brome. V-c 33. Horcott Hill, Kempsford C.P., SU19P & U. 17/06/2006 (CK and MARK). Abundant in cereal field. V-c 34. Tarlton, Rodmarton C.P., ST99U. 06/08/2006 (CK and MARK). Good quantity along edge of wheatfield.

**Setaria pumila* (Poiret.) Roemer & Schultes, Yellow Bristle-grass. V-c 33. Sandhurst, Sandhurst C.P., SO82G. 26/10/2006 (TDK det TBR). Single plant.

Colchicum autumnale L., Meadow Saffron. V-c 33. Littleworth Wood, Snowshill C.P., SP03W. 26/03/2006 (MJ and BL). Two patches each of about a hundred plants. V-c 34. Bodkin Hazel Wood, Horton C.P., ST78S & X. 12/03/2006 (MJ and BL). Two patches of about 80 and 50 plants.

Polygonatum multiflorum (L.) All., Solomon's-seal. V-c 33. Cutsdean Hill, Cutsdean C.P., SP03A. 29/04/2006 (CK and MARK). Single roadside spike by copse edge. Introduced here.

**Scilla siberica* Haw., Siberian Squill. V-c 33. Fosse Cross, Chedworth C.P., SP00U. 14/04/2006 (CK and MARK). Small roadside patch by copse.

**Muscari neglecta* Guss. Ex Ten., Grape Hyacinth. V-c 33. Hill Barn Farm, Snowshill C.P., SP13B. 29/04/2006 (CK and MARK). Six small clumps along 14m of road verge by field corner.

**Allium neopolitanum* Cirillo, Neapolitan Garlic. V-c 33. Hinchwick Manor, Condicote C.P., SP12P. 29/04/2006 (MJ and BL det JP). A few plants.

**Tristagama uniflorum* (Lindl.) Traub, Spring Starflower. V-c 33. Near the Park, Cheltenham, SO92A. April 2006 (RW). About 30 plants in flower amongst roadside grass verge by B & Q superstore. First noticed in 2005.

**Leucojum aestivum* L. subsp. *pulchellum* (Salisb.) Briq., Summer Snowflake. V-c 34. The Perryway, Fromebridge, Frampton on Severn C.P., SO70T. 16/04/2006 (CK and MARK). One metre patch on road verge.

*Cephalanthera damasonium (*Miller) Druce, White Helleborine. V-c 33. Cotswold Hills Golf Club, Ullenwood, Coberley C.P., SO91N. 20/05/2006 (ARB). Twenty-eight flowering spikes by covert on the golf course.

Epipactis phyllanthes G.E. Smith, Green-flowered Helleborine. V-c 33. Scottsquar Hill, Edge, Painswick C.P., SO80P. 22/07/2006 (GHJM on GNS meeting). At least five plants.

Neottia nidus-avis (L.) Rich., Bird's-nest Orchid. V-c 34. Stony Green, West Dean C.P., SO60P. 04/06/2006 (CK and MARK). Three spikes under beech.

Dactylorhiza fuchsii (Druce) Soó, Common Spotted-orchid. V-c 33. Caudle Green, Brimpsfield C.P., SO91K. 31/05/2006 (JPM). South of Winchcombe, Sudeley C.P., SP02H. 24/06/2006 (JW). About thirty plants in damp grassland.

Ophrys apifera Hudson, Bee Orchid. V-c 33. RAF Fairford, Kempsford C.P., SU19U. 17/06/2006 (CK and MARK). Abundant. Upham Meadow, Twyning C.P., SO93D. 12/06/2005 (CK and MARK). In good quantity on M5 Motorway embankments.

BEETLE RECORDING IN GLOUCESTERSHIRE

Keith Alexander

2006 proved to be a memorable year for beetle recording with the discovery of three species additional to the county list and plenty of county rarities reported. The most interesting addition is the scarlet longhorn *Pyrrhidium sanguineum* found by Tony Taylor in Collinpark Wood on a Gloucestershire Invertebrate Group meeting. It is regarded as a relict old growth species in its mid-Welsh Border stronghold and was most unexpected in Gloucestershire.

Biodiversity Action Plan species surveys during the year yielded a few more old orchards with Noble Chafer *Gnorimus nobilis* – in Churcham, Minsterworth and Tibberton parishes but Hairy Click Beetle *Synaptus filiformis* eluded me, partly due to the rivers Severn and Wye being in spate at the start of the survey period and its reed canary-grass habitat being submerged.

Details of the three additional species are:

Pyrrhidium sanguineum (L.) – **Red Data Book Category 2 (Vulnerable).** The scarlet longhorn develops in the cambial layer of dead boughs, crown, felled trunks and stumps of oak, although also reported from other hardwoods; the adults bask in sunshine and fly actively under suitable conditions, but are not known to visit blossom. Main GB concentration is in Radnorshire, extending into neighbouring counties.

SO72 Collinpark Wood, pair in cop., 13.v.2006, A Taylor.

Sphinginus lobatus (Olivier) – Only added to the British List in 1984, this malachite beetle has been found widely in Hampshire. Since then it has only been reported from Hertfordshire, but it is clearly a recent colonist of England and is expanding its distribution northwards. The larvae are thought to develop in dead twigs.

SO83 Chaceley Stock, one swept beneath willows along riverbank, 21.vi.2006, KNAA.

Ips cembrae (Heer) – Large Larch Bark Beetle. An established introduction in the conifer forests of Scotland and northern England but spreading southwards. This is the first record from the south. The Forestry Commission say that the beetle is regarded as having the potential to cause damage in larch stands subjected to increased frequency of drought and if it is significantly extending its range it may well turn up in other locations.

SO61 Little Staple-edge Wood, Ruspidge, burrowing in bark of larch, 18.xi.2006, CT., det KNAA & C. Tilbury (FC).

There were also some important new records for rare species already on the county list:

Gastrallus immarginatus (Müller, P.W.J.) - **Red Data Book Category 1 (Endangered).** This tiny woodworm beetle develops in the bark of old field maple and fruit trees, forming characteristic clusters of tiny exit-holes on well-lit live trunks; confined to the Thames and Severn Basins and now known widely over the north Cotswolds and adjoining country; also in the old orchards of Gloucestershire and Worcestershire.

SO71 Bulley, exit holes in old open-grown field maple by orchard, 10.x.2006, KNAA.

Malthodes maurus (Laporte de Castelnau) - **Nationally Scarce Category B & County Rarity**. This soldier beetle appears to have always been a very rare species and its distribution and habitat associations remain unclear. Many of the recent records are from well-wooded country along river valleys. It is thought to develop in dead twigs and branches.

SO50 Townsend Farm, Brockweir, swept along open riverside close to willows, & Caswell Wood, trackside woodland ground flora, 6.vi.2006, KNAA.

Ptinus sexpunctatus Panzer - **Nationally Scarce Category B & County Rarity**. A spider beetle, living as a scavenger and mainly known from red mason bee nests, but also bird nests in and around buildings, eg house martin.

SO81 Churchdown, two from mason bee tubes, 20.ix.2006, CT.

Donacia clavipes Fabricius - **Nationally Scarce Category B & County Rarity.** A reed beetle associated with *Phragmites* and *Sparganium*.

SO50 Brockweir, swept along River Wye, 6.vi.2006, KNAA.

Archarius villosus Fabricius - **Nationally Scarce Category B & County Rarity.** The larvae of this weevil develop as inquilines in 'oak apple' galls caused by the wasp *Biorhiza pallida*; also reported from rose bedeguar galls. Widespread across lowland Britain but very localised. Previously known from just three old records, the most recent being from Duntisbourne in 1942.

SO83 Severn Ham, Tewkesbury, one knocked from foliage of mature riverside oak, 25.v.2006, KNAA.

Thryogenes festucae (Herbst) – **County Rarity**. The larvae of this weevil probably develop in the stems of *Scirpus* and/or related plants, in wetlands. Widely distributed across lowland England and Wales. Previously only known in the county from the Coombe Hill Canal.

SO50 Brockweir, swept from tall riverside vegetation, 6.vi.2006, KNAA.

Hoplia philanthus (Fuessly) - Welsh Chafer. **County Rarity**. A species of moist soils with undisturbed open vegetation, including hay meadows and rush pastures, but not on alluvial soils. Adults attracted to flowering shrubs. Locally common in southern Britain.

SO50 Ellwood Meend, on bracken, 16.vi.2006, CT.

Pseudotriphyllus suturalis (Fabricius) – **County Rarity**. Adults associated with bracket fungi, most often *Laetiporus sulphureus* and *Polyporus squamosus*. Widespread over lowland central and eastern England, but with remarkably few records from Gloucestershire.
SO71 Bulley, on *Laetiporus sulphureus* bracket fungus on old plum tree, 10.x.2006, KNAA.

INTERESTING NEW RECORDS OF DIPTERA

Keith Alexander

Interest in some of our larger and more attractive flies seems to be growing, presumably directly as a result of the publication of *British Soldierflies and their allies* by the British Entomological and Natural History Society in 2001. Suddenly these very interesting but previously rather obscure and difficult to identify flies are readily accessible. The most interesting report is the rediscovery of the nationally declining stiletto fly *Thereva plebeja* on the Cotswolds – Martin Matthews gets 'fly of the year' once again!.

Thereva plebeja (Linnaeus) – Crochet-hooked Stiletto Fly. **Nationally Scarce & County Rarity**. Associated with a range of dry exposed habitats, including rocky limestone grasslands, heaths, and disturbed ground situations. It requires areas of loose friable soil and sparse vegetation – the larvae live in the soil where they hunt other invertebrates. It has become increasingly scarce throughout its British range and was thought to be extinct in the county – the last known record was in 1924.
SP13 Cutsdean Quarry, 24.vi.2006, M Matthews.

Other important finds during 2006 include the following:
Bombylius canescens Mikan – Western Bee-fly. **Nationally Scarce & County Rarity**. The larvae develop in the cells of *Halictus* bees, in sand dunes, heathland, and calcareous grassland; mostly in south-west of Britain.
SO50 Clearwell Meend, 16.vi.2006, C Twissell.
SO61 Flaxley Woods, photographed on partly vegetated ground in damp area, 12.vi.2006, NJ Phillips.
Machimus cingulatus (Fabricius) – Brown Heath Robberfly. **County Rarity**. Mainly found on the woodland edges to sandy heaths.
SO61 Pope's Hill, 8.viii.2006, male keyed out & a few others seen; 11.viii.2006, NJP.

Choerades marginatus (Linnaeus) – Golden-haired Robberfly. **Nationally Scarce & County Rarity**. Confined to the ancient oak forests of southern England.
SO61 Blaisdon Wood, one photographed, 29.vi.2006, NJP (see Plate 9).
Neoitamus cyanurus (Loew) – Common Awl Robberfly. **County Rarity**. Found in ancient woodland, especially oak. Its new English name seems very inappropriate for such a rare species in the county.
SO61 Foxes Bridge, one in dapple shade on fallen trunk and leaves, photographed, 4.vii.2006, NJP (see Plate 8).
Sargus flavipes Meigen – Yellow-legged Centurion. **County Rarity**. Larvae develop in decaying vegetation and dung, usually in woodland edge situations; widespread nationally but few records locally.
SO61 Pope's Hill, 10.viii.2006, NJP.

MOLLUSC REPORT 2006

David Long

There were no new vice-county records this year. Recording by Jeremy Doe along Cotswold main road verges, under a contract, produced finds of *Helicella itala* and *Abida secale* as far east as SP0608. *Helicella itala* was also found by the Gloucestershire Invertebrate Group in Cutsdean Quarry SP104313 and it was noted as just surviving on the south sides of Crickley (SO926160) and Leckhampton Hills (SO945176). *Abida secale* was also found in disused quarries at Nibley Knoll (ST744957) (GIG meeting 10th September) and at Rolling Bank, Cleeve Hill (SO987267), and on escarpment grassland on Crickley Hill (SO929166).

There was one record, in January, of *Phenacolimax major* at Birdlip (SO923143), confirming an old record. *Ena montana* was also found there in August, in April at Woodchester Park (SO8300), and by the GIG at Saltridge Common Wood on 1st October, the first record there since 1991. *Zenobiella subrufescens* is evidently common in most woods and their edges in the Cotswolds.

A survey at Breakheart quarry, near Dursley for GWML produced records for woodland species like *Zenobiella subrufescens* and *Helicigona lapicida* around the edge of the site, but rock dwelling species such as *Pyramidula rupestris* were curiously absent from the quarry.

Juliet Bailey's old farm garden at Standish produced about 10 *Testacella maugei* on 17th October, along with *Pupilla muscorum*, *Vallonia excentrica* and *V. costata* in a shortish mossy front lawn.

A short survey (2 days) of the Castle Meads-Over Ponds area for GWML produced a slightly limited fen/pond fauna, including *Aplexa hypnorum*. Access to the old reserve area was difficult because of landscaping operations in the area so it was not possible to refind *Vertigo antivertigo*.

There were no more records of *Malacolimax tenellus* this year, perhaps because of a lack of visits in suitable weather. *Limax cinereoniger* was found at Dowdeswell Wood, (Jeremy Doe), Silk Wood (GIG 22nd April), and Saltridge Common Wood (GIG 1st October).

Species associated in the past with gardens seem increasingly to be turning up in the countryside in general – *Oxychilus draparnaudi* and *Deroceras panormitanum* for example.

Many thanks to Jeremy Doe, John Fleming, John Harper, David Haigh, Juliet Bailey, Colin and Ingrid Twissell, David Scott-Langley and Guy Meredith for finding molluscs and/or sending in records.

THE DIVERSITY AND ABUNDANCE OF NEST-DWELLING ARTHROPODS, PARTICULARLY ECTOPARASITES, IN GREAT TIT NESTS AT NAGSHEAD RSPB NATURE RESERVE

Anne Goodenough, PhD Researcher, University of Gloucestershire

INTRODUCTION

Bird nestboxes are occupied by more than just birds. Inside most nestboxes, and indeed natural nest cavities, there is a miniature ecosystem containing a wide range of specialised nest-dwelling arthropods (jointed-limbed invertebrates or "creepy-crawlies"). These arthropods comprise both parasitic species (known as ectoparasites as they live outside the host) and free-living species.

This article considers the diversity and abundance of arthropods, particularly parasitic species, found in Great Tit (*Parus major*) nests, and the variability in these factors. The nests were collected from nestboxes at Nagshead RSPB Nature Reserve in 2006 and analysed in minute detail.

MATERIAL AND METHODS

Nagshead RSPB Nature Reserve

Nagshead Nature Reserve covers 308 hectares and is managed by the RSPB and the Forestry Commission for its nationally important diversity of breeding birds. The reserve is a broadleaved plantation, dominated by Pedunculate Oak (*Quercus robur*). In 2006, the reserve managed 347 standard (equally-sized) "tit" nestboxes as part of the longest-running nestbox scheme in the UK, also one of the longest-running in Europe.

Nest parasite load

In 2006, the nests of 20 Great Tits were collected from nestboxes at Nagshead for parasite analysis under licence by English Nature (licence number 20060590). The nest structure was removed from the nestbox immediately post-fledging (within 24 hours) before the parasites started deserting the nest (Burtt *et al.*, 1990). Any addled eggs and dead pulli were removed and the nest was placed in a "zip-lock" air-tight polythene bag (Clark, 1990). Feather dust and parasites remaining in the nestbox were collected either by aspiration with a pooter using suction provided by a battery-powered miniature vacuum (Halloa KBC-1) or by using soft entomology forceps as appropriate. To ensure researcher bias did not influence the analysis, bags were marked with a random 3-digit code (Burtt *et al.*, 1990) which was only translated into the nestbox number after analysis was completed.

Once in the laboratory, nests were deep-frozen to kill and preserve the parasites and other nest-dwelling arthropods. The nest material was then thoroughly searched for arthropods under dissection (low-power) microscope at 10x magnification using tweezers and mounted needles to pull apart the nesting material and soft-tipped paint brushes to search the feather dust (Rogers *et al.*, 1990). Arthropods were extracted using entomological forceps and were grouped according to taxa using the information and keys in Hill (1994), Tilling (1987), Chinery (1993), Proctor & Lynch (1993), and Smith (2000) under a dissection microscope at up to 40x magnification. The number of individuals in each taxonomic group was counted and digital photographs were taken of sample specimens using a microscope camera (Nikon Digital Sight DS-5M) mounted on a dissection or compound (high-power) microscope (Nikon SMZ800 or Eclipse 50i respectively) as appropriate (see Plates 24-27).

Statistical analyses

To establish if there was a relationship between the number of chicks (range 3 to 8) and either the total number of parasites or the abundance of any one parasitic species, separate applications of the Spearman Rank Correlation Coefficient test were used. This technique compares two count variables (i.e. the number of chicks and the number of fleas) to ascertain if there is a significant relationship between them. The Spearman Rank technique was also used to test for relationships in the abundance of different parasitic species in the same nest. Such interrelationships might be positive (nests with high numbers of one parasite also having high numbers of another parasite) as might occur if the presence of one parasitic species facilitated parasitism by another species, or negative (nests with high numbers of one parasite having a low number of another parasite) as might occur if one parasitic species inhibited parasitism by another species (Heeb *et al.*, 2000).

RESULTS

Parasitic species diversity

A number of different parasitic arthropods (mainly insects and arachnids) were found. These included fleas and their larvae (or nymphs as they are referred to by some authorities) (class Insecta: order Siphonaptera: species *Ceratophyllus gallinae*), blowfly larvae and pupae (class Insecta: order Diptera: genus *Protocalliphora*), and biting lice (class Insecta: order Mallophaga: sub-order Ischnocera) and also mites and ticks (class Arachnida: order Acari). The number of nestboxes infested with each of these is detailed in Table 1, which shows that fleas and their larvae were the most commonly occurring species. The proportion of total parasitic load that each of these species accounted for varied between nestboxes and the overall species composition (from the 20 nests combined) is shown in Figure 1.

	Nestboxes infested	
	Number ($N = 20$)	Percentage
Fleas (Adult)	20	100%
Fleas (Larvae)	20	100%
Blowfly (Larvae)	2	10%
Blowfly (Pupae)	7	35%
Lice	11	55%
Ticks	3	15%
Mites	1	5%

Table 1: The number of Great Tit nests from nestboxes at Nagshead containing various ectoparasitic species and life-forms

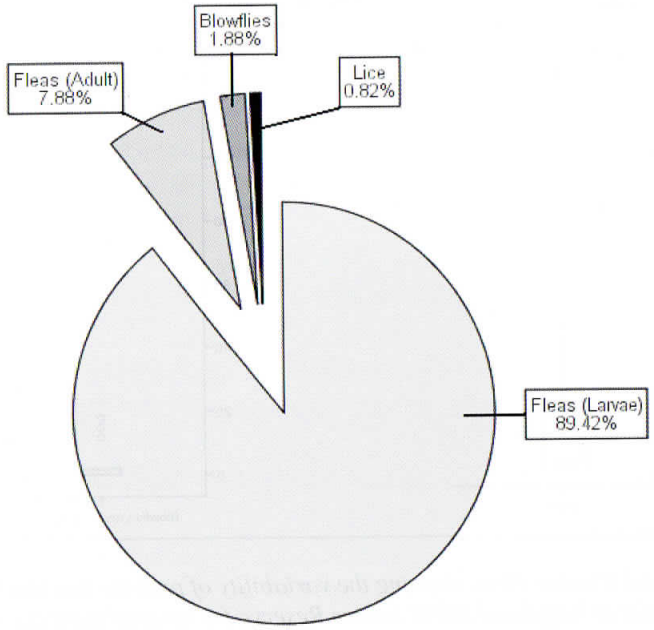

Figure 1: Parasitic species composition of great tit nests at Nagshead. Note that the small number of ticks and mites found means that these species do not appear on the chart.

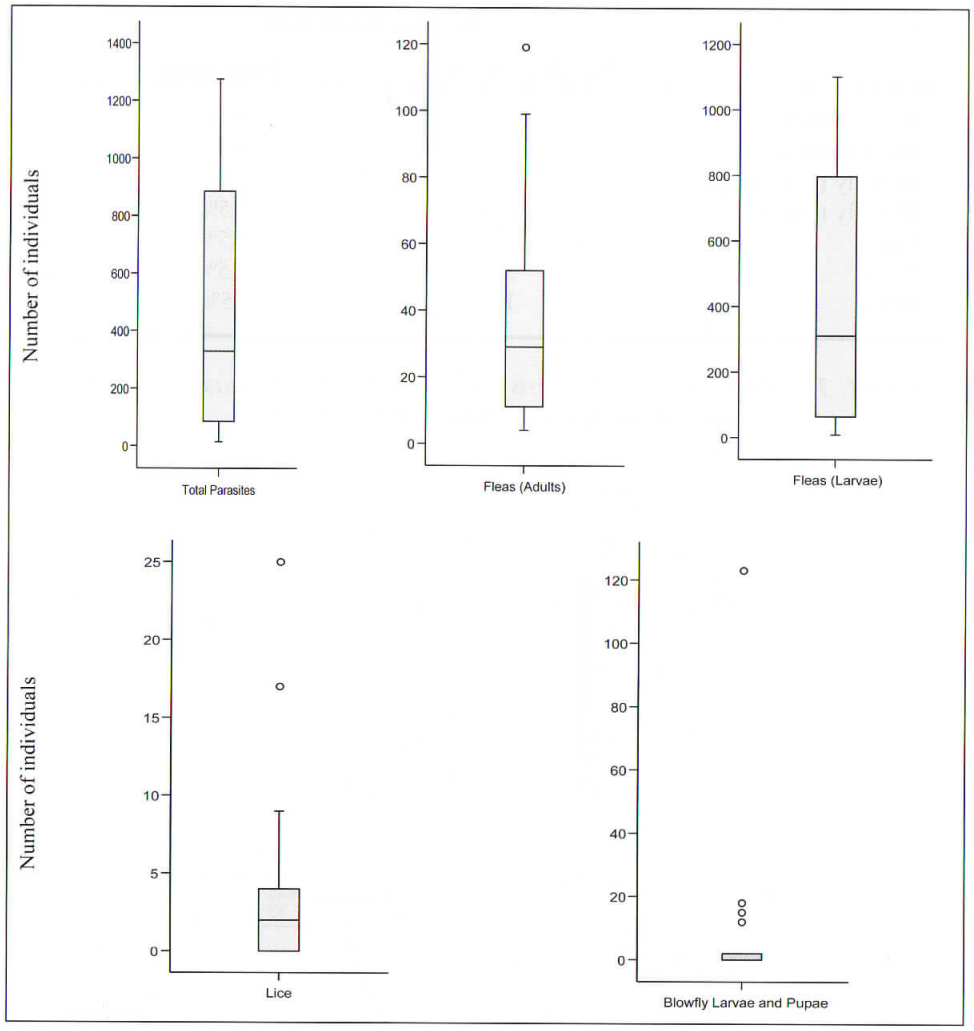

Figure 2: Box and Whisker Plots showing the variability of parasite loading between different nestboxes at Nagshead RSPB Nature Reserve for (a) total parasitic species, (b) adult fleas, (c) larval fleas, (d) lice, and (e) blowfly larvae and pupae. The 'box' shows the standard (inter-quartile) range, the 'whiskers' the main range, the bar the average (median) and any open circles any outliers.

Parasitic species abundance

The number of parasite species in the nests was, in many cases, remarkably high: 1,275 parasitic individuals were found in one nest. There was, however, considerable variability in nest parasitic load, both in terms of individual species and overall. This variability is shown graphically in Figure 2a-e, which shows that, for example, the number of fleas per nest ranged 5 to 119, with an average of about 30 (mean = 35.7; median = 26.5).

The species which varied most in abundance between nests was the blowfly (present as larvae and pupae) which ranged between 0 and 123. Interestingly, there was no relationship between the number of chicks (range 3 to 8) on either the total abundance of parasites or on the abundance of any one specific parasitic species (see Figure 3).

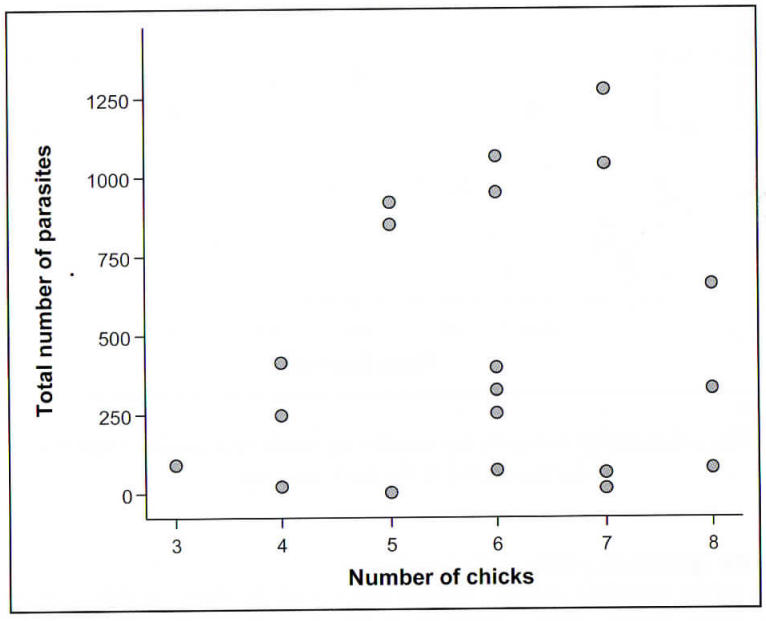

Figure 3: The (lack of) relationship between the number of chicks in a nest and the total number of parasites found in that nest (however, as always, with a bigger sample size a relationship might become apparent)

Parasitic species inter-relationships

No significant relationships were found between the abundance of different parasitic species in the nests (i.e. the presence or abundance of one species did not appear to influence the presence or abundance of any other species). The only significant (positive) relationship was in the same species between life-forms: the number of fleas and the number of flea larvae were significantly related such that when the number of fleas increased, the number of flea larvae also increased as might be expected (see Figure 4).

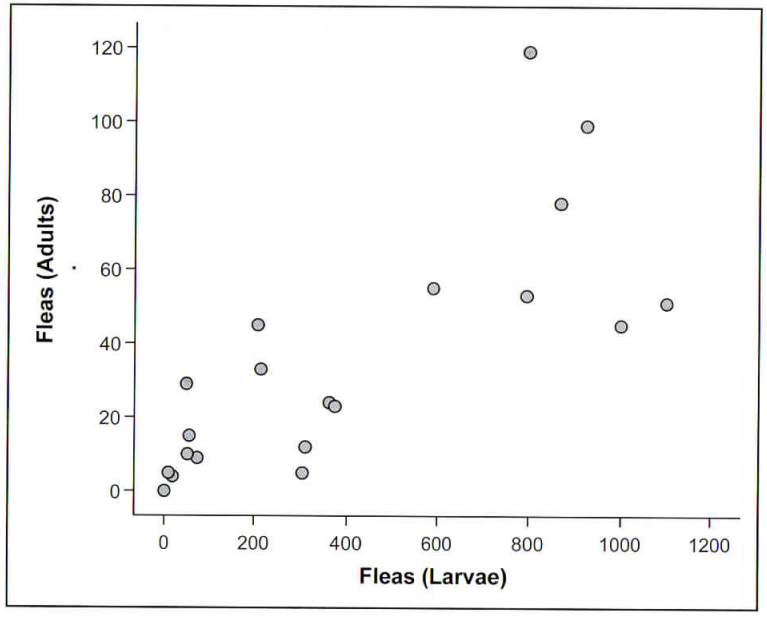

Figure 4: The relationship between the number of adult fleas and the number of flea larvae found in the nest material

Non-parasitic species diversity and abundance

In addition to the parasitic species, several other nest-dwelling, mainly scavenging, arthropods were found. Most abundant were several species of beetle (order Coleoptera), both adults and larvae, including rove beetles (family Staphylinidae) and click beetles (family Elateridae as well as the occasional Wasp Beetle (family Cerambycidae: species *Clytus arietis*) and a member of the *Trox* genus, probably *Trox scaber*, which is a known scavenger in birds' nests (Chinery, 1993). The most interesting beetle, however, was an uncommon member of the Histeridae family

which has been tentatively identified as *Gnathoncus buyssoni* (Keith Alexander, *pers. comm.*). This species has been found in birds' nests before but mainly in Scandinavia. In this study, 18 of the 20 nests (90%) contained this species and a total of 101 individuals was found, suggesting that in Britain it might be more under-recorded than uncommon. Other species found included bumblebees and wasps (order Hymenoptera) (too badly damaged for further identification) and several Ichneumonid wasps (family Ichneumonidae) which often parasitise other insects, commonly beetle larvae. As most nests contained high numbers of such larvae, this might account for the presence of the Ichneumonid wasps.

DISCUSSION

Parasitic species diversity and abundance

This study highlights the number and diversity of nest-dwelling arthropods, particularly the parasitic species. Many parasites have been identified only to family or genera but this serves to give an indication of the parasitic pressure on nesting birds and their offspring. Some species (adult fleas, blowfly larvae, ticks and mites) suck blood from their hosts as their primary food source. Others, including the lice, usually feed on the skin and feathers rather than on blood itself. In the case of two of the parasitic species found in this study, fleas and blowflies, not all life-forms are parasitic and thus the species are technically partial parasites.

Fleas undertake the most important part of their life-cycle, reproduction, during the bird nesting period. Adult fleas which live on adult birds as hosts mate in the relative safety of the nesting environment and the females lay their eggs. Once these eggs hatch, the white larvae live in the nest material and feed on feather dust and other organic material. At this stage they are not directly parasitic but their presence increases the blood-sucking behaviour of the adult fleas who then excrete undigested blood for the larvae to feed on. Larvae then become blood-engorged (see Plate 26) and may thus be considered as indirect parasites (Cotton, 1970). The larvae then pupate in the nestbox over the winter and hatch into adult fleas the following spring. Thus the removal of nesting material from nestboxes between breeding seasons helps to keep parasite populations in check, an action thought to be one of the main reasons why breeding success of birds is usually higher in nestboxes compared with natural cavities (Purcell *et al.*, 1997).

For blowflies of the genus *Protocalliphora* found here, it is only the larvae that are parasitic. Adult flies enter the nestbox only to lay eggs, usually when young birds are a quarter to one third grown (Rogers *et al.*, 1990). These then hatch and the larvae live in the nest material, only usually attaching to the chicks to feed at night (Boyd, 1951). Once the larvae pupate, the parasitic stage of their life-cycle is complete. However,

pupae were included as parasitic life-forms in this study as the larvae would have been feeding on the chicks during the nesting period.

It should be noted that this study quantified the diversity and number of parasites that remained in the nesting material post-fledging, but did not account for parasites that deserted the nest with the pulli. This would include species such as feather mites and louse-flies which remain on the host throughout their entire life-cycle. The abundance of flea and louse species, which again remain on the host for much of their life-cycle, might also be under-represented here.

Non-parasitic species diversity and abundance

It was interesting to see the array of other (non-parasitic) nest-dwelling arthropods that cohabit with the birds in the nestboxes without being detrimental to the birds in any way. Indeed, in many cases the scavenging beetles have a symbiotic (i.e. mutually beneficial) relationship with the birds. Scavenging beetles, for example, feed on dead chicks which benefits the beetles by giving them a food source, and the birds by decomposing this unwanted organic matter which can pose a health risk to the remaining chicks through the spread of disease.

ACKNOWLEDGEMENTS

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REFERENCES

Boyd, E.M. (1951) The external parasites of birds. *Wilson Bulletin*, **63**, 363-369.

Burtt, E.H., Chow, W. and Babbitt, G.A. (1990) Occurrence and demography of mites of tree swallow, house wren, and eastern bluebird nests. *Bird-Parasite Interactions* (eds Loye, J. and Zuk, M), pp 205-221, Oxford: Oxford University Press.

Chinery, M. (1993) *Insects of Britain and Northern Europe* (3rd edn). London: Harper Collins.

Clark, L. (1990) The nest protection hypothesis: the adaptive use of plant secondary compounds by European starlings. *Bird-Parasite Interactions* (eds Loye, J. and Zuk, M), pp 205-221, Oxford: Oxford University Press.

Cotton, M.J. (1970) The life history of the hen flea *Ceratophyllus gallinae* (Shrank) (Siphonoptera ceratophyllidae). *Entomologist*, *103*, 45-48.

Heeb, P., Kölliker, M. and Richner, H. (2000) Bird-ectoparasite interactions, nest humidity and ectoparasite community structure. *Ecology*, **81**, 958-968.

Hill, J.R. (1994) What's bugging your birds? An introduction to the ectoparasites of purple martins. *Purple Martin Update*, **5**, 1-7.

Proctor, N.S. and Lynch, P.J. (1993) *Manual of Ornithology: Avian Structure and Function*. London: Yale University Press.

Purcell, K, Verner, J. and Oring, L. (1997) A Comparison of the Breeding Ecology of Birds Nesting in Boxes and Tree Cavities. *Auk*, **114**, 646-656.

Rogers, C.A., Robertson, R.J. and Stutchbury, B.J. (1990) Patterns and effects of parasitism by *Protocalliphora sialia* on tree swallow nestlings. *Bird-Parasite Interactions* (eds Loye, J. and Zuk, M), pp 205-221, Oxford: Oxford University Press.

Smith, V.S. (2000) *Avian Louse Phylogeny (Phthiraptera: Ischnocera): A Cladistic Study Based On Morphology*. PhD Thesis, university of Glasgow, May 2000.

Tilling, S.M. (1987) A key to British terrestrial invertebrates, *Field Studies*, **6**, 695-766.

BUTTERFLY REPORT 2006

Chris Wiltshire

First of all a big thank you to all who have sent in records so far. It is gratifying to think that some of you must have read my report for 2005.

Following a normal winter it was very much a season of two halves. Poor weather in April and May tended to suppress butterfly activity and probably recorder activity too. This was not good for the Spring species and could result in low numbers for 2007. Once into June the weather improved significantly with more sunshine, higher temperatures and little rain; this pattern continued until August when temperatures dropped and some, by then, much needed rain arrived. Despite this the weather was reasonably good in September and October. On the whole more good "butterfly days" than bad and butterflies have been noted on the wing right up to the end of December. The following is based on around 2,500 records received with more promised and consequently must be considered as a provisional report.

Small & Essex Skippers did well with the latter turning up on new sites and increasing in numbers.
Large Skipper made only a moderate improvement on its low numbers of recent years.
Dingy Skipper also made a slight improvement on recent low numbers and the highest number seen at any one time was 22 at Strawberry Banks.
Grizzled Skipper did not fare well with an apparent decline in numbers and few records; most being around the Cinderford and Dursley areas.
Clouded Yellow (now classified as a resident) was recorded throughout the county from mid June to mid October mostly as singletons but I did see seven at once seen at Coombe Hill, Wotton-under-Edge. Not a "Clouded Yellow year" but over 30 records.
Brimstone did not have a good year with fewer observations noted especially in Spring.
Large White was widespread and probably the most numerous of the Whites but barely average numbers.
Small White numbers variable with some people reporting very few while others claimed they were abundant. In my experience, they were very common around the Dursley area. Fewer records overall.
Green-veined White had a moderate season with up to 25 seen at one time. A species recorded more from woodland and open countryside.
Wood White. Few records received but Simon Barker states that it did well in the Dean. Was there a second generation in the hot season?

Orange Tip. Few records received, the earliest being 12th April and last 7th June. No records from the county east of Cleeve Common; I suspect this is due to reduced recorder activity in the poor Spring weather.
Green Hairstreak is another species which is continuing to decline but the weather did not help this species. Only 35 records received and a maximum of five seen at one time at Swellshill by John Crowther.
Brown Hairstreak no records this year.
Purple Hairstreak. The number of records received suggest that this species had a good year. Early evening is the best time to see it.
White-letter Hairstreak. 28 records were received thanks to the efforts of Rob and Rose Mabbett and John Coates who carried out targeted recording for this species in the Gloucester and Cheltenham area. There is a good scatter of records for the area they searched. Seven were seen at once in Lineover Wood. This shows that we will have to target a different area for 2007 to see if similar results can be obtained.
Small Copper. Only eight Spring records but 40 records from July to late September, scattered throughout the county.
Small Blue. Only 42 records of this species but transect data shows that where it occurred it did well. Most records from the Cotswolds.
Brown Argus again produced fewer Spring records but it seemed to make up for that with good numbers appearing in the Summer generation. Curiously the highest number recorded was 22 at Swellshill on 10th September while the last record for the year was a singleton on the next day at Shortwood near Haresfield.
Common Blue. While there are lots of records it is not a straightforward picture as it did well on some sites but few were recorded on others e.g. Wetmoor transect recorded 4th highest index for 19 years while Stinchcombe Hill A transect had 3rd lowest count for 19 years! John Coates saw over 50 at Kilkenny picnic site on 6th August.
Chalkhill Blue was another species with lower numbers and fewer records than usual. Highest number recorded was only nine on the Bill Smyllie reserve. Despite being found on a new site near Kemble, perhaps the "amber light" is showing for this species. (Compare with next species.)
Adonis Blue. For Gloucestershire it is the most exciting thing since the discovery of the Large Blue. Back in 2000 there were no known colonies in the county. In 2001 a breeding colony established itself on Stinchcombe Hill. How it got there is unclear at this stage but the colony survived and built up in numbers each year reaching its peak three years later. From here it has dispersed to other nearby sites where numbers have built up and again it dispersed to other sites stepping-stone fashion. Historically there have only been 27 sites for Adonis in the two vice counties of Gloucestershire but in 2006 there were 23 sites recorded from Coombe Hill in the south to Sheepscombe Common in the North. This probably means that in 2006 it was flying on more sites

than at any time previously! Certainly there were more records of Adonis than Chalkhill and the numbers recorded were higher too. Two important points are:

1. It is a much more mobile species than previously thought.
2. It is occupying sites with longer turf than it used to.

This last point is probably a factor of climate change.

Large Blue. The little information I have seems to show that it was not a brilliant year for it but the population continues to survive.

Holly Blue had a reasonable year with records scattered across the county, mostly singletons.

Duke of Burgundy. On the wing from 3rd May to 15th June so the first three weeks were in the poor weather. Numbers down on previous years probably due to this. However conditions improved for the last two weeks but numbers remained low; only 18 records in total. The Rodborough Common transect proved to be the best place to see them.

White Admiral. A species which had a wonderful year; it was reported from several new sites from Berkeley to Gloucester and beyond. It was expected to do well this year because of the good weather in June prior to its emergence. The Wetmoor transect showed that it had the highest index for ten years.

Red Admiral is both a resident and migrant. It had a good year with records right across the county from mid-March until mid-November.

Painted Lady. This migrant turned up in reasonable numbers this year but nothing like the numbers seen in 1996 or even 2003 but several transects agree that it has been the 3rd highest count in the last couple of decades. Some late specimens flying well into October.

Small Tortoiseshell – Oh dear what has happened here? It is at a very low ebb at the moment and I have received lots of comments from people to this effect. Although there are currently 54 records on the database most of these are singletons or, occasionally, twos. The total number being considerably less than the total number of Adonis Blues!

Peacock. Another species of mixed fortunes, in some places it has done only moderately well and in others it has put on a good show. I received records of several late ones in November and Rob Mabbett saw one flying at Brierley on 28th December!

Comma has, in general, had a good year with lots of records commencing with a flurry on 1st April. No late records though.

Pearl-bordered Fritillary is still hanging on, mainly around Hailey Wood but Guy Meredith found a new site in the Dean.

Small Pearl-bordered Fritillary. After a recent appeal for information on this species (because no records had been received) three people sent me a total of six records – all around the Cinderford area.

Dark Green Fritillary. Possibly a slight increase in numbers but only slight. Ten records received but two from new sites – possibly wanderers.

Silver Washed Fritillary. This is another species which had a fantastic year rather like the White Admiral. 63 records spread around the county helped by targeted recording by Tricia Atkinson. Seen from late June to late August which suggests that its flight period is shifted forward by about a week.

Marsh Fritillary. In addition to its stronghold it was reported from a new site near Stroud, another SE of Cheltenham where 12 were seen at once and also at a former breeding site – Lower Woods. It may be that the number of breeding colonies in the county will increase to two but we will have to wait until next year to be certain.

Speckled Wood. Transect data shows that it had an average year but some recorders commented that it was absent from their gardens.

Wall. Few records but one new site noted. With the exception of one at St Briavels all the others were in an arc from south to east around Cheltenham. An equal split between Spring and Summer generations.

Marbled White. Numbers slightly below average with the impression that it had a shorter flight period; beginning on 12th June and all over by the end of July except for two individuals which struggled into August.

Grayling. From records received so far it has only been recorded on Selsley Common and nice to hear that one was seen on Crickley Hill after an absence of about 10 years. No records yet from Cleeve Common area.

Gatekeeper. Transect counts were slightly less than average but even so it was widely distributed and very common at some sites from 25th June to 27th August. Roger Pearce noted 56 on Haresfield Hill on 22nd July.

Meadow Brown had an unremarkable year.

Small Heath. A confused picture, doing well in some places but low numbers in others. John Crowther recorded the highest number of 43 at Swellshill on 12th June.

Ringlet also showed numbers to be below average but that is to be expected of a species which probably did not enjoy all that sunshine and high temperatures in June & July.

RARE MIGRANTS

Swallowtail produced another confirmed record, this time from Toddington.

There was an unconfirmed report of a Bath White near Fairford. At the time of writing this is still being investigated.

There was also an influx of Camberwell Beauty to Britain but as far as I can tell none of them came to Gloucestershire.

AMPHIBIAN AND REPTILE REPORT 2006

Colin Twissell

Early in 2006 I was asked if I would apply for a special licence from Natural England to enable the British Trust for Conservation Volunteers to restore a dewpond at Westonbirt Arboretum. The dewpond was reported to have great crested newts, (*Triturus cristatus*) hence the licence request. The work was carried out at the end of February, the pond emptied and any amphibians encountered, transferred and placed beneath a frost free hibernacula. No Great-crested Newts were found, but several Palmate Newts (*Triturus helveticus*) and Smooth Newts, (*Triturus vulgaris*) together with some Common Frogs (*Rana temporaria*) were rescued and taken to safety.

Two newly-created ponds, one in a garden near Newent and the other near Oakridge, established two new records for Great-crested Newts, which have found the ponds to their liking. In April the Amphibian and Reptile Group were invited to visit the airbase at Fairford. We were escorted around the base by the Environmental Flight Chief and in one emergency water storage tank we counted 200-300 Great-crested Newts. It was great to see the enthusiasm shown, and the amount of effort made to improve the habitats for amphibians on the airbase, including creating new ponds.

Thirty Palmate Newts were counted in a large trough near Slad in a water depth of only nine inches which just indicates that the newt requirements are not too demanding. In late October I discovered twenty-one Palmate Newts under logs near the shoreline of the ponds at Wigpool, presumably in preparation for Spring.

Frogspawn was reported from a few sites at the end of January/early February, but with the onset of a cold spell, most spawning was delayed until mid-March. At the north end of the Linear Park near Cinderford, there were at least 100 frogs, mostly males trying to woo a mate, surrounded by a large mass of spawn. I received a few reports from people with garden ponds having seen some sickly, lethargic frogs. The causes can be numerous, but there could be a link with higher than average temperatures. A lecture at the ARG-UK meeting in January 2007 by Dr. Chris Reading from the Centre for Ecology and Hydrology talked of the possible effects of a warming climate and amphibian declines. He used the results of a 1983 to 2006 study on the Common Toad, which showed a clear relationship with a decline in the body condition of female toads and warmer temperatures. Hot dry summers could reduce the invertebrate prey availability, thus causing amphibians to enter hibernation underweight. This could be compounded by mild winters preventing the amphibians slowing down their metabolism sufficiently and therefore emerging from hibernation the following year, in poor condition. This, together with the energy demands of egg

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production on underweight female amphibians increases their susceptibility to diseases.

The second wave of frog activity in March coincided with the emergence of the Common Toad (*Bufo bufo*). Several toad casualties were noted on the road which runs alongside Cannop Ponds. Toads were heard croaking and seen in amplexus at Coombe Hill Canal on the 1st April. At Dowdeswell Reservoir, there were few reported sightings of adult toads, but numerous toadlets were seen later in the year. Maybe a survival strategy will evolve which will favour the toads whose home range is to the north of the reservoir in Dowdeswell Woods, as those whose migration route crosses the A40 must by now have been virtually eliminated. At least there was more frogspawn seen in the Dowdeswell residuum than for some time.

From locations along the Cotswold Scarp and Forest of Dean I received fourteen sightings of Common Lizard (*Lacerta vivipara*), mostly in ones or twos; but as one recorder noted, once you know where to look (given the right habitat, weather and time of day), double figures can be achieved.

For a secretive lizard, I received numerous reports of Slow-worms (*Anguis fragilis*). Some were seen crossing open ground, others found killed on roads or cycle tracks. Most were discovered in compost heaps or if their refuge (logs, stones or other discarded items) was moved.

Should anyone wish to be involved in the "Slow-worm Compost Survey", I do have some questionnaire forms. The survey is being coordinated by The Herpetological Conservation Trust, in close partnership with the Amphibian and Reptile Groups of the UK as part of the National Amphibian and Reptile Recording Scheme (NARRS).

Like the Slow-worm, Grass Snakes (*Natrix natrix*) are often encountered in compost heaps. Their presence is not so much in search of food items, but to use the rotting compost as an incubator for their eggs. Two sightings of Grass Snake on compost heaps were received and one included the presence of eggs together with hatchlings. Most sightings were of Grass Snakes in and around water bodies. I regularly found two young Grass Snakes at Coombe Hill, one basking and one under stones. Hopefully they moved to higher ground to hibernate, as the site has since been under floodwater for some time!

Just a few records of Adders (*Vipera berus*) were received, mostly from known locations, which is comforting to know that they are surviving at these sites. So often they are seen basking close to footpaths along the Cotswold Scarp and their proximity to people always increases the chance of persecution. One headline appeared in the

Gloucestershire Echo – "Teenager is bitten by adder", not an unlikely happening, until you read that this happened in an area off Princess Elizabeth Way, Cheltenham!

Thanks to the following contributors of records:- J Bailey, A Ball, R Beale, A Bingle, S & C Brown, C Butters, I Carle, S & I Cheese, P Clayton, P Dymott, J Fleming, D Foster, W Francis, R Gaunt, M Glenny, R Godfrey, T Grant, S & L Guenot, D Haigh, J Harper, G Harris, D Iliff, P Kingston, D Lane, C Mackin, C McLaren, G & S Meredith, L Pierce, J & V Phillips, V Polly, I Proctor, H Ratcliffe, A Robbins, D Scott-Langley, M Thompson, I Twissell.

HETEROPTERA (LAND BUGS) REPORT 2006

John Widgery

My move to the County in June inevitably meant that recording activities were curtailed this year. Nevertheless it still proved to be a most interesting season with several notable highlights. In fact two supposed County rarities even turn up in my new home!

Whilst there was only one entirely new County record several species that had not been seen for over 50 years were rediscovered. There were also quite dramatic population increases and range expansions of species which are in the process of newly-colonising southern Britain some of these having only been seen in the County once or twice previously.

A summary of noteworthy records is given as follows:-

Newly-colonising species

Stictopleurus abutilon:- Regarded as extinct in Britain until recent years during which it has suddenly re-appeared (possibly through migration from Continental Europe) and spread rapidly throughout southern U.K. First County record not until 26th September near Berkeley (ST6498) but since then searches have revealed that it is actually already widespread. It can usually be found feeding on the seeds of *Asteracea.*

Stictopleurus punctatonervosus:- Once again, regarded as extinct in the UK until recently but this is also now spreading at a remarkable rate throughout southern Britain. First found in Woodmancote in 2005 which was the only record until this year when it has proved to be widespread throughout the County. Often found together with the preceding species on *Asteracea.*

Corizus hyoscyami:- Another species in the same family (*Rhopalidae*) as the former two but this is a far more colourful and visually attractive insect (basically scarlet with black markings) which is about 10mm in length. Its known range was restricted to the south and west coasts of the UK until about three or four years ago but then it started to turn up in a few places many miles inland from these original sites and in fact the first record for the County occurred about this time when Colin Twissell found it at Lower Woods (ST7488) in October 2003. It was again found at Avonmouth Docks (ST5177) in May 2005. However, in 2006 this range expansion became quite impressive throughout southern England and in Gloucestershire it was found at five further sites. John Harper got it twice, at Beachley Point (ST5490) in July and Nibley Knoll (ST7495) in September. Colin and Ingrid Twissell, between them, again recorded it twice in the Forest of Dean, at Woorgreens (SO6212) in July and Wigpool (SO6519) in October. I also found it at Leckhampton Hill (SO9518) in

August. It will be interesting to see whether this handsome bug becomes established over the next few years (see Plate 16).

Lygus pratensis:- This formerly rare (RDB3) bug is yet another which is spreading rapidly. There has, in the past, been some confusion owing to similarity with others in the genus but recent studies have made identification easier. In general, it is slightly larger, more elongate and more clearly marked than its close relatives. The first Gloucestershire record was in 2005 but in summer and autumn of 2006 it was found to be widespread in the County, usually in small numbers, mainly on *Asteracea*.

Long-absent species rediscovered

Heterogaster artemesiae:- The presence of this nationally scarce insect in Gloucestershire is known from County lists published in 1923, 1945 and 1955 but the only specific record was for Rodborough Common in 1944. I came across it in some numbers in July on Cleeve Hill (SO9826 etc) on Thyme, its food plant, growing along track edges. Strangely it is more noticeable in its nymphal stages during which it carries a brilliant white band running along the base of the pronotum and white markings on the upper abdomen. These clear markings are lost as an adult when it takes on a rather bland brownish-grey colour.

Rhyparochromus pini:- Another nationally scarce species which has certainly not been seen in the County for over 50 years and maybe much longer. Its presence was recorded in the same County lists quoted for the aforementioned species but there have been no detailed records. I refound it in September this year in the Forest of Dean near Crabtree Hill (SO6313). This brightly marked, typically heathland species, is usually seen running on bare ground or amongst leaf litter in areas sheltered by trees. Despite its name it is not associated solely with Pines.

Trapezonotus dispar:- Regarded as a County rarity which is 'locally extinct', this species (previously regarded as *T. quadratus*) was, again, reported in the same County lists up to 1955 but no specific data exists. It turned up in September this year when I found it in the Forest of Dean near Crabtree Hill (SO6313) when sifting through litter at the base of Scots Pine, *Pinus sylvestris*. It has probably been overlooked.

Orius majusculus:- This tiny (2.5mm) insect, regarded as a County rarity and not recorded in Gloucestershire since 1944, is easily overlooked but one turned up in my new home in Woodmancote (SO9727) on 3rd September.

Other County Scarce or Rare Species

Peritrechus nubilis:- This is regarded as a County rarity with only one previous sighting by Keith Alexander in 2003. I swept a specimen from a grassy roadside embankment in Ham Road near Charlton Kings (SP9921) on 29th October. I would guess it is overlooked.

Miridius quadrivirgatus:- This rather smart-looking grass bug was first discovered in Gloucestershire at Shuthonger Common in 1999 and was seen again at Sherborne

Farm water meadows in 2000. There were no further records until 2006 when, during July, I collected it at Haresfield Beacon (SO8209) and Crickley Hill (SO9216).

Macrotylus solitarius:- This County scarce species, for which there have been only four records since 1944, was found on Hedge Woundwort, *Stachys sylvatica*, its food plant near Winchcombe (SP0226) on 24th June.

Strongylocoris leucocephalus:- Since a historical record in 1943 for this County rarity there are only two recorded extant sites for it post-1985, at Minchinhampton Common and Rodborough Common. However, in addition to noting it in June this year on Cleeve Common (SP0023) on 23rd September I find that I have, in fact, recorded it previously at this site plus three others since 2000. The other localities are near Shortwood (SO8208), near Stanton (SP0734) and also Noverton Hill (Bill Smyllie Nature Reserve) (SO9923). For some reason, whilst submitted these records have not found their way onto the County database. It is always found in limestone grassland.

Anaptus major:- I was surprised to learn that this insect is regarded as a County rarity as I have found it to be fairly common elsewhere. Whilst first reported in a County list in 1923 and being recorded in 1943, there have only been three modern records since 1996. In a rather limited season I found it near Berkeley (ST6397) on 26th September.

Dufouriellus ater:- This difficult to find, tiny (c.2mm) County rarity which is normally only found under bark turned up unexpectedly in my home at Woodmancote (SO9727) on the evening of 26th August, possibly attracted to light. It was also found this year by Keith Alexander under the bark of a dead plum tree at Pear Tree Farm, Popes Hill (SO6814). Prior to this year there have been only two modern records since 2001.

Temnostethus pusillus:- Yet another species which is listed as County scarce for which there have been only four modern records since 2000, but I would guess it is overlooked. It is another tiny insect (c.2.5mm) which is usually found on bark amongst lichens and moss on tree trunks and twigs and therefore needs to be specially searched for by brushing such appendages into a suitable container. On the only occasion that I made such a search, I found it quite readily on Ash at Nottingham Hill near Woodmancote (SO9727) on 20th July.

Thanks must go to Keith Alexander for all the effort he has put in over the years in monitoring the County Hemiptera prior to me taking over.

LICHEN REPORT 2006

Ian Carle

In 2006 GNS lichen group visits gathered 742 records, I made a further 602 records on non lichen group trips. Other recorders contributed 100 records giving a grand total of 1444 records for the year.

Our lichen group visits took us to a variety of sites spread across the county. Unusually we did not visit any churchyard sites instead trying to focus the groups recording efforts on woodland and natural rock outcrops. The year got off to a productive, if wet start with our visit to the Gloucestershire Wildlife Trust's Lancaut and Ban-y-Gor Nature Reserves, we were lucky enough to be joined by Alan Orange who found *Verrucaria calciseda* (Nationally rare) and *Verrucaria elaeina* (Nationally scarce).

Alan was able to join us three weeks later for our lichen recording weekend along with Bryan Edwards the British Lichen Society Conservation Officer. Bryan was responsible for the find of the year as he recorded *Bacidia incompta* in one of the woodlands around Cleeve Common. *Bacidia incompta* is a national and local biodiversity action plan lichen which had not been recorded in the county for 45 years. The woodland turned up several other interesting species including *Psoroglaena stigonemoides* and *Strigula taylorii* both nationally scarce species. Sunday's trip to the National Trust's Sherborne Park produced yet more nationally rare and scarce species including *Caloplaca phlogina* a recently identified species and *Caloplaca ulcerosa* from the parkland trees and *Verrucaria polysticta* from the roadside wall.

Other interesting records include *Flavoparmelia soredians* found by Pam Pugh on our trip to Glasshouse Orchard in August. It is our second record on the database for this species and the first for VC34. Pam found it on an apple twig, our only previous record for the species was from an acidic stone memorial at Elkstone Church. It will be interesting to see where else we find this species as it appears to be expanding its range in England.

My own recording trips turned up a first record for Gloucestershire on our database for the nationally scarce lichen *Catapyrenium squamulosum* and a second Gloucestershire record for *Toninia verrucarioides* (also nationally scarce) recorded from the churchyard at Standish. I also made another new 10-kilometre square for the nationally scarce *Caloplaca ulcerosa* on an ash tree near Barnsley.

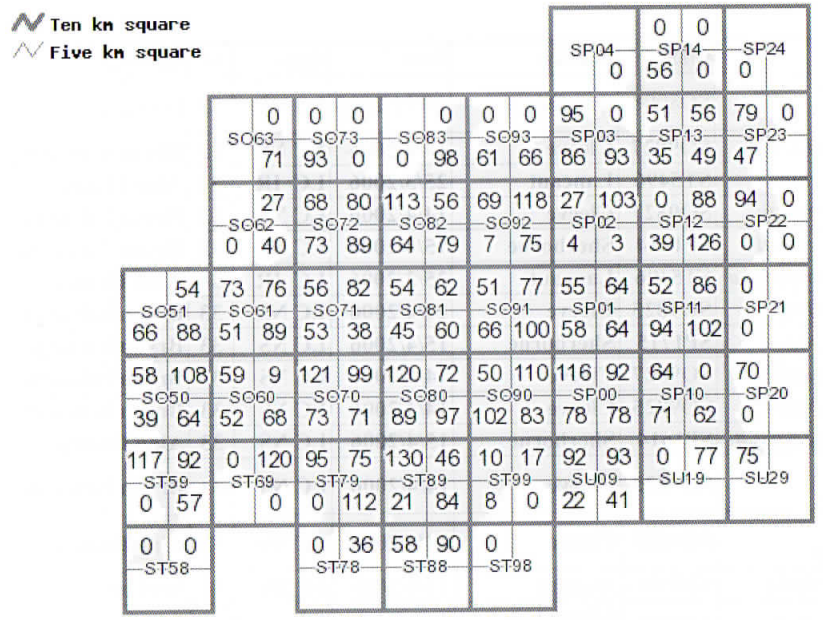


Figure 5. County map showing the number of records per 5-kilometre square on the Lichen Group database at the end of 2006.

Interesting records

Records in bold were gathered on GNS lichen group meetings

Name	Grid	Location	Date	Status	VC	Recorder
Aspicilia contorta subsp. hoffmanniana	**SP1614**	**Sherborne**	**15/4/2006**	**DD NR**	**33**	**Bryan Edwards**
Bacidia incompta	**SO9825**	**Cleeve**	**14/4/2006**	**VU P**	**33**	**Bryan Edwards**
Caloplaca crenulatella	**ST5496**	**Lancaut**	**25/3/2006**	**LC NS**	**34**	**Alan Orange**
Caloplaca crenulatella	**SP1715**	**Sherborne**	**15/4/2006**	**LC NS**	**33**	**Bryan Edwards**
Caloplaca crenulatella	**SP1615**	**Sherborne**	**15/4/2006**	**LC NS**	**33**	**Alan Orange**
Caloplaca phlogina	**SP1615**	**Sherborne**	**15/4/2006**	**NR ?NS**	**33**	**Bryan Edwards**
Caloplaca phlogina	**SP1615**	**Sherborne**	**15/4/2006**	**NR ?NS**	**33**	**Alan Orange**
Caloplaca ulcerosa	**SO9825**	**Cleeve**	**14/4/2006**	**LC NS**	**33**	**Bryan Edwards**
Caloplaca ulcerosa	SP0606	Barnsley	6/5/2006	LC NS	33	Ian Carle, Det. Bryan Edwards
Caloplaca ulcerosa	**SP1615**	**Sherborne**	**15/4/2006**	**LC NS**	**33**	**Bryan Edwards**

Name	Grid	Location	Date	Status	VC	Recorder
Catapyrenium squamulosum	SO8008	Standish	10/11/2006	LC NS	33	Ian Carle
Clauzadea metzleri	**SO9827**	**Cleeve**	**14/4/2006**	**LC NS**	**33**	**Bryan Edwards**
Cresponea premnea	**ST5496**	**Lancaut**	**25/3/2006**	**LC IR**	**34**	**Alan Orange**
Hymenelia prevostii	**SO9827**	**Cleeve**	**14/4/2006**	**LC NS**	**33**	**Bryan Edwards**
Hymenelia prevostii	**SP1614**	**Sherborne**	**15/4/2006**	**LC NS**	**33**	**Bryan Edwards**
Lecanactis subabietina	**ST5496**	**Lancaut**	**25/3/2006**	**LC IR**	**34**	**Alan Orange**
Lecania cyrtellina	**SO9825**	**Cleeve**	**14/4/2006**	**LC NS**	**33**	**Bryan Edwards**
Lecanora aitema	**SP1715**	**Sherborne**	**15/4/2006**	**LC NS**	**33**	**Bryan Edwards**
Lecanora persimilis	**SO9827**	**Cleeve**	**14/4/2006**	**LC NS**	**33**	**Bryan Edwards**
Leptogium subtile	**SO9825**	**Cleeve**	**14/4/2006**	**LC NS**	**33**	**Bryan Edwards**
Opegrapha rupestris #	**SP1614**	**Sherborne**	**15/4/2006**	**LC NS**	**33**	**Alan Orange**
Psoroglaena stigonemoides	**SO9825**	**Cleeve**	**14/4/2006**	**LC NS**	**33**	**Bryan Edwards**
Psoroglaena stigonemoides	**SO9825**	**Cleeve**	**14/4/2006**	**LC NS**	**33**	**Alan Orange**
Punctelia ulophylla	ST8798	Avening	11/6/2006	LC NS	34	Ian Carle
Punctelia ulophylla	**SO7121**	**Glasshouse Orchard**	**5/8/2006**	**LC NS**	**34**	**Joy Ricketts**
Punctelia ulophylla	**SU0794**	**Hailstone House**	**30/9/2006**	**LC NS**	**33**	**Ian Carle**
Punctelia ulophylla	**SO7719**	**Highnam Woods**	**24/6/2006**	**LC NS**	**34**	**Ian Carle**
Punctelia ulophylla	**SO7720**	**Highnam Woods**	**24/6/2006**	**LC NS**	**34**	**Ian Carle**
Punctelia ulophylla	**ST5496**	**Lancaut**	**25/3/2006**	**LC NS**	**34**	**Alan Orange**
Punctelia ulophylla	**ST5699**	**Poor's Allotment SSSI**	**14/10/2006**	**LC NS**	**34**	**Ian Carle**
Punctelia ulophylla	**SP1714**	**Sherborne**	**15/4/2006**	**LC NS**	**33**	**Bryan Edwards**
Punctelia ulophylla	**SP1715**	**Sherborne**	**15/4/2006**	**LC NS**	**33**	**Bryan Edwards**
Punctelia ulophylla	**SP1715**	**Sherborne**	**15/4/2006**	**LC NS**	**33**	**Alan Orange**
Punctelia ulophylla	ST7497	Stinchcombe Hill	21/10/2006	LC NS	34	Ian Carle
Ramalina fraxinea	**SP1714**	**Sherborne**	**15/4/2006**	**LC IR**	**33**	**Bryan Edwards**
Strigula taylorii	**SO9825**	**Cleeve**	**14/4/2006**	**LC NS IR**	**33**	**Bryan Edwards**
Toninia verrucarioides	SO8008	Standish	10/11/2006	LC NS	33	Ian Carle
Verrucaria calciseda	**ST5496**	**Lancaut**	**25/3/2006**	**LC NR**	**34**	**Alan Orange**
Verrucaria calciseda	**SP1715**	**Sherborne**	**15/4/2006**	**LC NR**	**33**	**Alan Orange**

Verrucaria calciseda	**SP1614**	**Sherborne**	**15/4/2006**	**LC NR**	**33**	**Alan Orange**
Verrucaria elaeina	**SO9825**	**Cleeve**	**14/4/2006**	**LC NS**	**33**	**Bryan Edwards**
Verrucaria elaeina	**SO9825**	**Cleeve**	**14/4/2006**	**LC NS**	**33**	**Alan Orange**
Verrucaria elaeina	**ST5496**	**Lancaut**	**25/3/2006**	**LC NS**	**34**	**Alan Orange**
Verrucaria elaeina	**SP1715**	**Sherborne**	**15/4/2006**	**LC NS**	**33**	**Alan Orange**
Verrucaria murina	**SO9825**	**Cleeve**	**14/4/2006**	**LC NS**	**33**	**Bryan Edwards**
Verrucaria murina	**SO9825**	**Cleeve**	**14/4/2006**	**LC NS**	**33**	**Alan Orange**
Verrucaria polysticta	**SP1614**	**Sherborne**	**15/4/2006**	**DD NR**	**33**	**Alan Orange**

Key to status

DD - Data Deficient NR - Nationally Rare IR International Responsibility
NS - Nationally Scarce VU - Vulnerable LC - Least Concern*

*The least concern category indicates that although the taxon may appear to be currently scarce or rare there is good evidence that with further recording effort it will be found in more locations. Status information has been taken from 'A Conservation Evaluation of British Lichens' by R.G. Woods and B.J. Coppins published by the British Lichen Society in 2003.

I would like to thank the following for their support: Joy Ricketts the Worcestershire County Recorder, Bryan Edwards BLS Conservation Officer, Alan Orange National Museum of Wales and David Hill President BLS. Thanks also to Juliet Bailey, Alan Orange, Pam Pugh and Dr Paul Smith for submitting their records and to Jeremy Doe, Richard Spyvee and Mark Berry for bringing lichen samples back for me to look at from their travels around the county. And finally, thanks to Juliet Bailey and Paul Tyers for hosting the annual lichen group weekend event.

MAMMAL REPORT 2006

Rosie Kelsall

This year has been one of mixed success for mammals in the county. Most of the surveys undertaken have been concentrated on Biodiversity Action Plan species and other records have been from incidental sightings rather than organised survey effort. Both types of record are equally valued and all help to build a picture of the state of mammals in the county.

The Water Vole *(Arvicola terrestris),* not a species one often associates with success. However after many years of trying the Gloucestershire Wildlife Trust and the Environment Agency have managed to secure funding to employ a water vole officer to concentrate on a targeted project in the Berkeley Vale area of the county. This will help to ensure the survival and enhancement of water vole populations in this area and will hopefully have knock on benefits to other wetland mammals such as Otter *(Lutra lutra)* which also use the area.

Otter records have been slightly down this year, although a volunteer survey of the Forest of Dean area undertaken during the early winter will hopefully yield some interesting results. Road casualties have also been down, fortunately, with only 2 reported during the year to date. Unfortunately these have been in areas where it would be hard to predict that this mammal would come into contact with the roads, and so although remedial action is identified, there is little that could have been done to prevent these deaths occurring.

The Dormouse *(Muscardinus avellanarius)* has been the focus of activity particularly in the Wye Valley, with the Wye Valley woodLIFE project identifying the need to recruit and train volunteers to undertake long-term box monitoring. I have been undertaking this work, and have been overwhelmed by the level of interest received. The Wye Valley is in most parts ideal dormouse habitat with large mixed woodlands, small copses and inter-linking hedgerows all providing habitat for this species to survive. However, many of the records for the area are old and so this box scheme should help to provide new and up to date information which can be used to influence the future management of these sites.

It is unknown what the effect of our changing climate will be on hibernating species such as the dormouse. However, more and more records are received of active animals during the winter at times when they would traditionally be considered to be hibernating. For instance this year I received records during January, February and March of active dormice, often feeding from bird feeders. If you record dormice at unusual times of year, do please let me know.

ODONATA REPORT 2006

Ingrid Twissell

2006 dragonfly emergence and recording may have started later than usual, due to the inclement weather, but it turned out to be an exciting year for Gloucestershire dragonflies.

The first damselfly of the year was seen on 30th April, this being the **Large Red Damselfly** *(Pyrrhosoma nymphula)* (PT), then the appearance of the **Azure Damselfly** *(Coenagrion puella)* on 7th May (RR) started a quick succession of species being seen in that week, including the first dragonflies – the **Broad-bodied Chaser** *(Libellula depressa)* and the **Hairy Dragonfly** *(Brachytron pratense)*, both being sighted on 11th May (CT, IT). The **Hairy Dragonfly** has done extremely well at its one site in the county, being seen regularly until 16th June (DP). In the week beginning 23rd May, seven more species were seen including the National Scarcities, the **Common Clubtail** *(Gomphus vulgatissimus)* (MM, CT, IT) and the **Downy Emerald** *(Cordulia aenea)* (CT, IT). A total of thirteen species were seen in May, with seven more first appearing in June, a further two in July, three in August and a possible sighting of the **Yellow-winged Darter** *(Sympetrum flaveolum)* on 1st September (AM, SN). This brought the total number of species seen in 2006 to 28/29 out of a total of 32 ever recorded in the county.

The **Scarce Chaser** *(Libellula fulva)*, also Nationally Scarce, after not being recorded in 2005, had an extremely good year in 2006, with over 50 adults being seen in June (MM, CT, IT), including five mating pairs, along the River Avon near Tewkesbury. A further sighting occurred at a wetland site between the rivers Avon and Severn (NJP).

The **Downy Emerald** was seen at two locations, in May, 9 at one location in the Cotswold Water Park (RR), and 5 in the Forest of Dean (CT, IT) where a mating pair were observed hanging up on an alder.

The **Common Clubtail** was seen at two sites – along the River Wye at Tintern (KA), and near Tewkesbury by the River Severn (MM, CT, IT).

The **Keeled Skimmer** *(Orthetrum coerulescens)* was only seen once this year, in June, at a new location in the Forest of Dean (NJP). This is one of our scarce dragonflies, although not nationally so.

One of the exciting events of the year was the observation of a mating and ovipositing pair of the **Lesser Emperor** *(Anax parthenope)* at Swillbrook Lakes NR, on the 19th July (SC), the hottest day of the year. This is the first record of possible breeding in Gloucestershire. Several more adults were seen in the CWP during the summer.

The next excitement occurred on 1st August when 2 male **Small red-eyed Damselflies** *(Erythromma viridulum)* were spotted at Coombe Hill Meadows NR

(CT, IT). This is the first sighting in Gloucestershire, and was followed up by a male being spotted at the WWT Reserve at Slimbridge a few days later (MMcG).

The **Black Darter** *(Sympetrum danae)* is still very scarce in the county, with only 3 adults being seen at two locations in the Forest of Dean (NJP, CT, IT).

Species which have had a good year in the county include the **Beautiful Demoiselle** *(Calopteryx virgo)*, with over 50 being seen at one site (CB); the **White-legged Damselfly** *(Platycnemis pennipes)*, with many sightings at different locations including small streams, and about 30 at one site (CT, IT); the **Red-eyed Damselfly** *(Erythromma najas)* which has been found at several new sites, including the **Small Red-eyed Damselfly** site; and the **Four-spotted Chaser** *(Libellula quadrimaculata)*, including over 30 in one area in the Forest of Dean (CT, IT).

The season extended well into the autumn, with over 90 **Common Darters** *(Sympetrum striolatum)* being seen at Coombe Hill Meadows NR, with about 20 pairs ovipositing, as well as 7 **Migrant Hawkers** *(Aeshna mixta)*, all on 7th October (CT, IT). Over 50 **Common Blue Damselflies** *(Enallagma cyathigerum)* were seen on 26th August (CT, IT), with many ovipositing pairs, and the species was last sighted on 4th October. The **Emerald Damselfly** *(Lestes sponsa)* was last recorded on 5th September, a late date (CT, IT).

The last records received of the year were on 26th November when both the **Migrant Hawker** (DP) and ovipositing **Common Darters** (NJP) were seen.

Activities which were undertaken in the year included giving three talks on Gloucestershire Dragonflies and leading two walks, reviewing Nationally and Locally Important Odonata occurring in Gloucestershire, and inputting and supplying MapMate records to the British Dragonfly Society (who are proposing to produce a new UK Odonata Atlas in the future) and to the Gloucestershire Centre for Environmental Records.

My thanks go to Colin Butters (CB), Steve Covey (SC), Martin Matthews (MM), Martin McGill (MMcG), Andy Moody (AM), Sheila Nicholls (SN), Dave Paynter (DP), John Phillips (NJP), Rosie Ray (RR), Peter Tonks (PT), Colin Twissell (CT), and all those who sent in records during the year, please continue to do so – I shall be most grateful.

Plate 1. The Bee Fly Villa cingulata *(the Downland Villa) at Daneway. (photo: David Iliff)*

Plate 2. Hoverfly Eriozona syrphoides *(white-tailed female) at Flaxley Woods, 18 May 2006. (photo: John Phillips).*

Plate 3. Hoverfly Criorhina ranunculi *(male), Silk Wood, 22 April 2006 (photo: David Iliff)*

Plate 4. Hoverfly Chrysotoxum verralli *(female). (Photo: David Iliff)*

Plate 5. Hoverfly Callicera aurata *(female) at Pope's Hill, 1 September 2006 (photo: John Phillips)*

Plate 6. Hoverfly Cheilosia soror *(female) at Pittville Park, 27 July 2006 (photo: David Iliff).*

Plate 7. Hoverfly Volucella inanis *(male), Pittville Park 24 July 2006. (photo: David Iliff)*

Plate 8. Neoitamus cyanurus *(Common Awl Robberfly) - July 4th 2006, Foxes Bridge, Forest of Dean (County Rarity) (photo: John Phillips).*

Plate 9. Choerades marginatus *(Golden-haired Robberfly) - 29th June 2006, Blaisdon Wood (Nationally Scarce, CountyRarity).(photo: John Phillips).*

*Plate 10. 16 Spot Ladybird (*Tytthaspis 16-punctata*) (photo: David Iliff)*

Plate 11. Male 2 Spot Ladybird mating with female 10 Spot Ladybird, Pittville Park, 21 April 2006. (photo: David Iliff)

*Plate 12. The False Ladybird (*Endomychus coccineus*); this adult emerged from a larva taken at Silk Wood on 22 April by Tony Taylor. (photo: David Iliff)*

*Plate 13. Hawthorn Shieldbug (*Acanthosoma haemorrhoidale*) walking on spider silk, Woodmancote, 26 August. (photo: David Iliff)*

Plate 14. Shieldbug Eurygaster testudinaria *taken at Wigpool by Colin and Ingrid Twissell. (photo: David Iliff)*

*Plate 15. Juniper Shieldbug (*Cyphostethus tristriatus*). (photo: David Iliff)*

Plate 16. Corizus hyoscyami *(photo: John Widgery).*

Plate 17. Lithobius pilicornis *from the centre of Cirencester. (60mm from tip of antenna to tip of hind leg.) (photo: David Scott-Langley)*

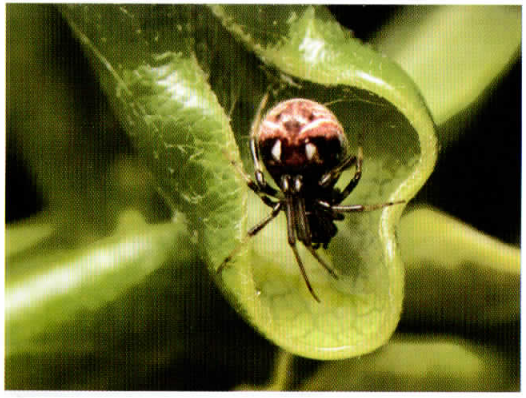


Plate 18. Achaearanea lunata. *(photo: Colin Twissell).*

Plate 19. Myosurus minimus *(Mousetail) in a trampled gateway at Ashleworth. (photo: Colin Butters)*

Plate 20. Buttoned Snout moth. Lechlade 31.x.07. First county record since 1955. *(photo: David Scott-Langley)*

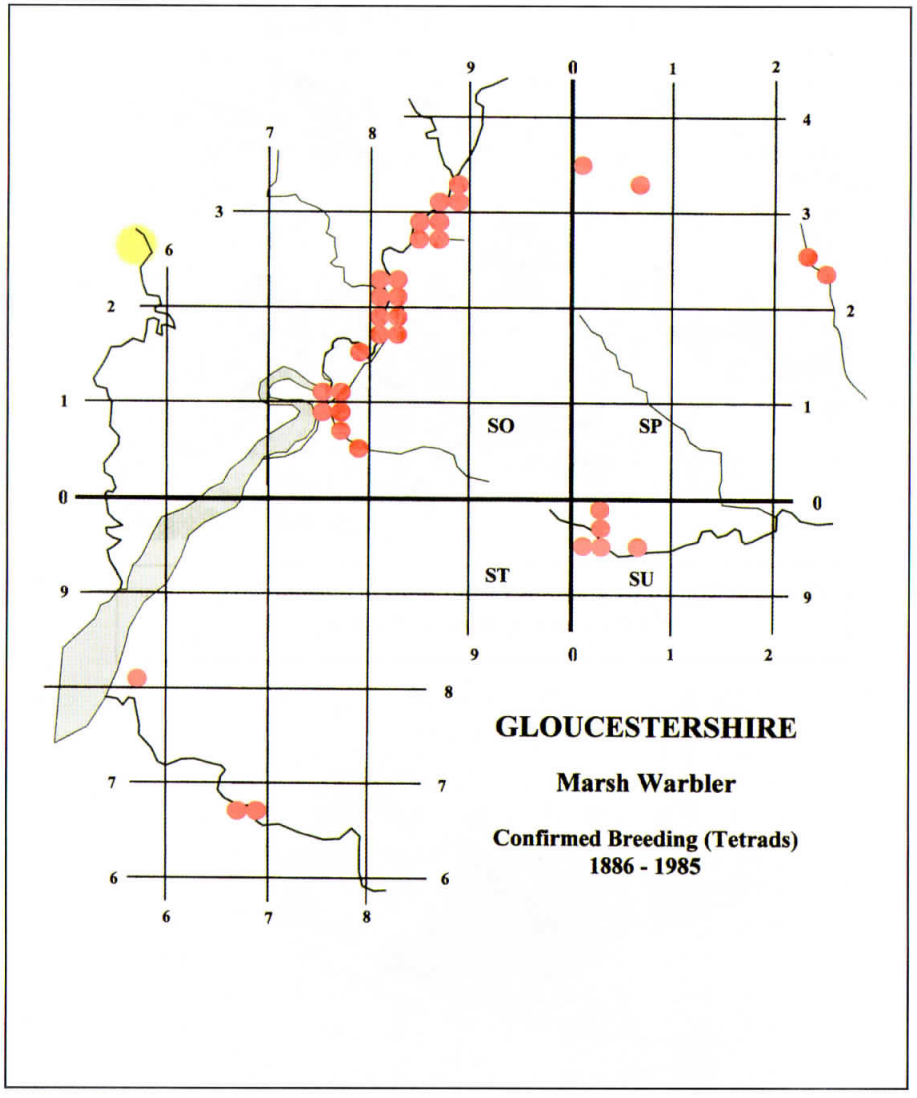


Plate 21. Map of the Severn Vale showing confirmed breeding tetrads for Marsh Warbler.

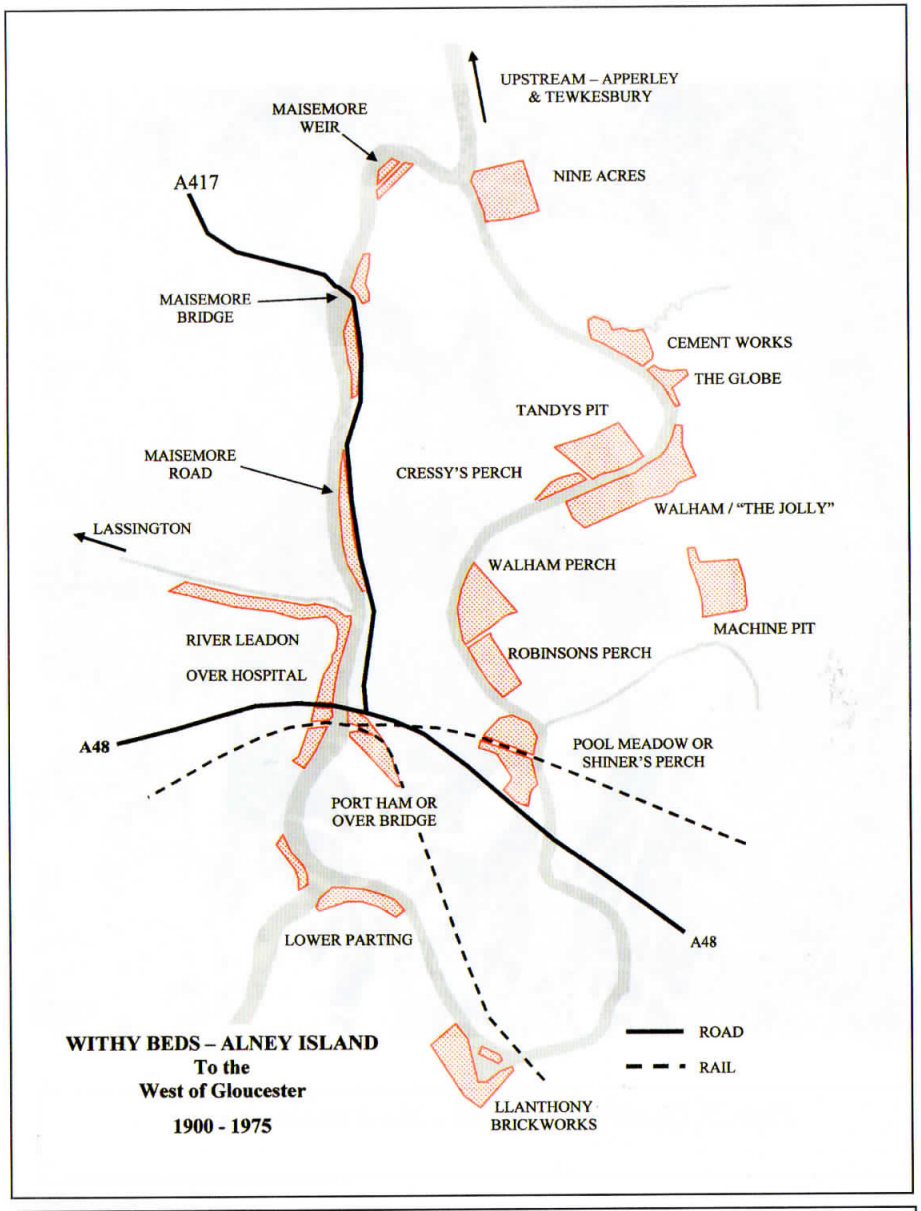


Plate 22. Distribution of withy beds around Alney Island.

Plate 23. Charlie Whitfield with a Marsh Warbler's nest.

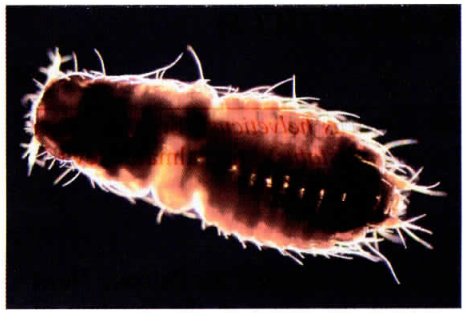


Plate 24. Avian biting louse (class Insecta: order: Mallophaga: sub-order: Ischnocera) from Nagshead nestbox number 430. (photo: Anne Goodenough)

*Plate 25. Avian flea (*Ceratophyllus gallinae*) adult morph from Nagshead nestbox number 108. (photo: Anne Goodenough)*

Plate 26. Avian flea (Ceratophyllus gallinae) *larval morphs from Nagshead nestbox number 155. (photo: Anne Goodenough)*

*Plate 27. Blowfly larva (*Protocalliphora *sp.) from Nagshead nestbox number 60. (photo: Anne Goodenough)*

THE PALMATE NEWT (*TRITURUS HELVETICUS*)

Colin Twissell

Of the three native British newts, Palmate Newt (*Triturus helveticus*), Smooth Newt (*Triturus vulgaris*) and Great Crested Newt (*Triturus cristatus*), the Palmate Newt is the smallest.

A Brief History

It was the Swiss naturalist M. Razoumowski who first recognised the Palmate Newt as a distinct species, when, in 1789, he discovered the newts in the fountain of Vernens in the Canton of Vaud, in the presence of Smooth Newts. Once Razoumowski's description of the Palmate Newt was published, it quickly led to the newt being discovered in other parts of Europe.

It was not discovered in Britain until April of 1843 when Mr William Baker found a newt in the area around Bridgwater, Somerset, which he thought to be a new newt species and informed Professor Thomas Bell of his discovery. Mr. Baker subsequently, on the 6th May 1843, sent Professor Bell some live specimens. Professor Bell kept and observed these newts and noted their distinguishing features and provisionally named them *Lissotriton appendiculatus*, but delayed publishing details of the species, and waited until the following spring when the newts would have again developed their full breeding dress.

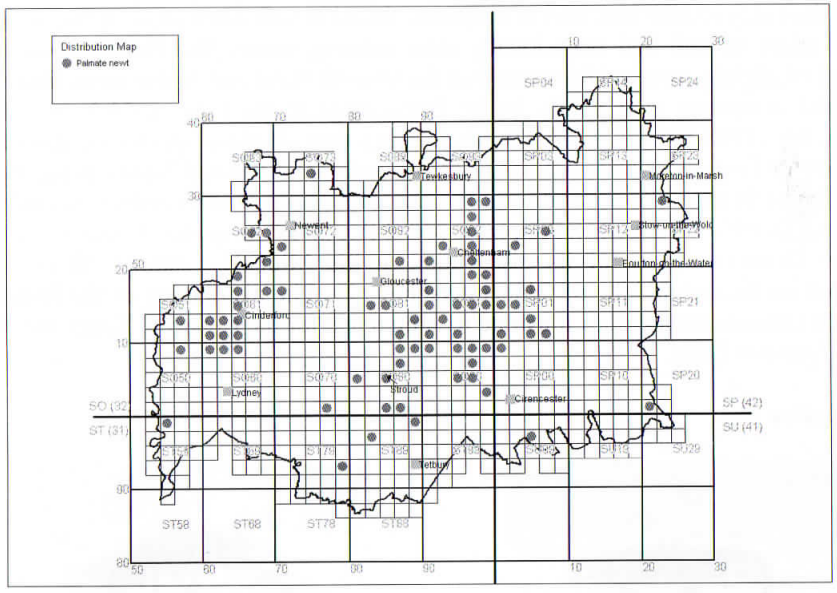
Nothing further happened until the 3rd May 1848 when Mr J. Wolley published, in the "Zoologist" journal, his discovery and description of a newt species found in the vicinity of Edinburgh, and also during a ramble in the Pentland Hills where he saw no other species. Mr Wolley informed Professor Bell of his find and also sent him numerous live specimens. Following this publication in the "Zoologist", Mr Baker subsequently wrote of his earlier finds of similar newts in Somerset some years earlier. Articles contributed by M. Julian Deby and Mr Edward Newman were subsequently published which helped clarify the situation, with observations and descriptions of the differences of both Smooth Newt and Palmate Newt together with short accounts of continental authorities on the subject. It was then established that the newts found by Mr Baker and Mr Wolley were in fact Palmate Newts (*Lissotriton palmipes*) and not a new species or sub-species of the Smooth Newt (*Lissotriton punctatus*), thus verifying the findings of Mr Baker and crediting him with being the first to record the Palmate Newt in England. Professor Bell, in the second edition of his book "A History of British Reptiles" 1849, acknowledged the error he had made

in the first edition of his book in which he had not correctly identified the above finds as the Palmate Newt.

The presence of the Palmate Newt in Gloucestershire, as published in the "Flora and Fauna of Gloucestershire" by C.A. Witchell and W.B. Strugnell, 1892, states that the newt was first recognised on the hills near Stroud in 1873, where it appeared to be abundant.

Distribution and Habitat

The range of the Palmate Newt is restricted to Western Europe: from Scotland to the northern part of the Iberian Peninsula, eastward to the River Elbe in Germany and western Czechoslovakia and into the lower and middle altitudes of the mountain ranges of the Alps in Switzerland. The Palmate Newt is absent from Ireland.



Distribution map of the Palmate Newt in Gloucestershire.

A breeding pond of the Palmate Newt.

The Palmate Newt is considered a strictly montane species and does in fact favour hilly and mountainous regions up to 2000m. Nevertheless its habitat selection is often lowland ponds of heath and woodland, in areas of sandy, peaty or limestone soils rather than clay or alluvium, and is frequently found in soft water areas. It breeds in a wide variety of still and occasionally slow running water. The Palmate Newt is tolerant of slightly more acidic water than the Smooth Newt and is also more likely to be found in nutrient poor ponds. In the Proceedings of the Cotteswold Naturalists' Field Club (1888-89) Mr. C. A. Witchell states that all three species of newt are common in Gloucestershire, with the Smooth and Great Crested Newts being most often found in the valleys, while the Palmate Newt is partial to higher ground. In Malcolm Smith's "The British Amphibians and Reptiles." he quotes Tomes (Victoria County History) writing of its distribution in the Midlands, stating: "It is very common on the oolitic hills of Gloucestershire …". The distribution of the Palmate Newt in Gloucestershire does illustrate its preference for the Cotswold Scarp and that of the Forest of Dean.

Description

Male Palmate Newt

Male Smooth Newt

The tail filament of the male Palmate Newt & the pale vertical bar above the hind limb of the female Palmate Newt.

The Palmate Newt measures 9 – 9.5cm, the males being a few millimetres shorter than the female. The male Palmate Newt is beautifully marked, its upper surface has dark green speckles or marbling on an olive-green background and the longitudinal central section of the tail-fin is light brown and edged above and below with a row of prominent dark spots. In the breeding season the male develops a low smooth dorsal crest, 1-2mm high; the hind feet become webbed and completely black. From the end of a truncated tail extends a short black filament. Running down the sides of the body are two ridges that give the newt a "squared" appearance. The belly is pale orange or yellow, sometimes with a few dark spots; the throat is always pinkish and unspotted, a feature to distinguish Palmate Newt from Smooth Newt.

Cloaca of female Palmate Newt.

Cloaca of male Palmate Newt – also showing the black webbed hind feet.

The female Palmate Newt lacks the dorsal crest, tail filament and webbed feet. The upper surface of the female is olive green or brown in colour with fine black spots varying in intensity and distribution; the underside is the same as the male.

Female Palmate and female Smooth Newts are very similar in appearance, but the pale pink unspotted throat and a pale bar above the hind legs of the female Palmate Newt are fairly reliable distinguishing features.

Throat of Palmate Newt.

Throat of Smooth Newt.
Spotting either marked as above, or very fine.

Outside of the breeding season the male Palmate Newt loses the tail filament and black webbing on the hind feet, but retains the "squared" back appearance, the bulbous cloaca, and eye stripe which runs from the nostril through the horizontal eye pupil and onto the neck.

Smooth and Palmate Newt larvae are indistinguishable in the field, but once metamorphosed, the two species of immature newts may be differentiated by the yellow-orange dorsal stripe of the young Palmate Newt, which runs from the neck, along the back and tail.

A newly metamorphosed Palmate Newt.

Breeding

Newts take 2 – 3 years to reach sexual maturity. They return to their breeding pond between February and March and stay until June and July, this activity peaking during April/May. As with our other native newts they undergo an elaborate courtship display. Once inseminated the female lays 200 –300 eggs. Each egg is individually laid and wrapped in the leaves of a selected aquatic plant using the adhesive substances on the egg membrane. This technique does give the egg some protection from predation and makes it inaccessible to the majority of invertebrates, but not from

that of fish and the great diving beetle (*Dytiscus marginalis*). Caddis and dragonfly larvae, large snails, frog tadpoles and fungal infections also add to the newt egg mortality. Waterfowl, too, add to the egg demise when eating pondweed with newt eggs attached. So despite wrapping the eggs, it is said that there is only a survival rate of about 16%!

The eggs hatch in about 2 – 3 weeks and the newt larvae remain motionless attached to the egg capsule or nearby vegetation obtaining their energy requirements from the yolk sac. By the time this food source is exhausted, the mouthparts have developed and oxygen absorbed through feathery gills. The newt larvae become free swimming and predatory, feeding on a variety of small invertebrates. The front legs develop first, followed by the hind legs some weeks later. The larvae now begin to resemble a smaller version of the adult newts. Metamorphosis is usually complete in 3 - 4 months, but the water temperature and the availability of food dictate the speed of development. If metamorphosis is not complete by the autumn, then the newt larvae will over-winter in the pond and then complete their development the following spring.

References

Arnold, E. Nicholas. 2002. *The Field Guide to the Reptile and Amphibians of Britain and Europe*. 2nd Edition. Harper Collins.

Beebee, Trevor and Griffiths, Richard. 2000. *Amphibians and Reptiles*. HarperCollins The New Naturalist.

Bell, Thomas. 1849. *A History of British Reptiles*. Second Edition. London.

Cooke, M.C. 1893. *Our Reptiles and Batrachians*. W.H. Allen & Co Ltd.

Griffiths, Richard A. 1995. *Newts and Salamanders of Europe*. T. & A.D. Poyser. Natural History.

Steward, J.W. 1969. *The Tailed Amphibians of Europe*. David and Charles.

Smith, Malcolm. 1964. *The British Amphibians and Reptiles*. 3rd Edition. Collins. The New Naturalist.

Witchall, Chas.A. & Strugnell, W. Bishop. 1892. *The Flora and Fauna of Gloucestershire*. Stroud Press.

Societas Europaea Herpetologica. 1997. *Atlas of Amphibians and Reptiles in Europe*. Muséum National D'histoire Naturelle. Paris.

Proceedings of the Cotteswold Naturalist's Field Club. 1865 & 1885 – 1889.

Photographs by Colin Twissell.
Dot-map provided by Ian Carle – Gloucestershire Centre for Environmental Records.

GLOUCESTERSHIRE MOTH REPORT 2006

Roger Gaunt

At the time of writing I have over 7500 records for 2006 on the database with more awaited.

General observations

Moth recording always produces results of interest and the year 2006 was no exception. There were three principal differences from an average year, all of which might be attributed to changes in weather patterns, or perhaps just random variation. We can't really be sure, but suspicions are gaining ground that the weather is changing.

The first was the remarkable influx of migrants. Since becoming moth recorder about twenty years ago I do not remember a year like it. There have certainly been good years in the past and we did not record any additions to the county list, but the numbers are what stand out in my mind. For example I recorded eleven **Vestal** at my home including three on September 11th and another three on the 28th. Fifteen **Scarce Bordered Straw** were recorded at Culkerton, including three on September 16th (Matthew and Millie Oates).

Not quite as obviously, there seemed to be more dispersal. Moths were turning up unexpectedly in unusual places. For example the **Cream-bordered Green Pea** at Culkerton (Matthew and Millie again), the **Beautiful Snout** at Bishop's Cleeve (Jon Brock) and the **Welsh Wave** and **The Crescent** here at St Briavels. This is in addition to the apparent spreading north and west of some species.

The third difference was the number of second generation adults. The reference books mention the occasional second brood specimens for some species, and we certainly had plenty of these. No mention is made of such broods for the **Rosy Footman** seen here on October 28th or the **Buff Footman** at Thrupp on October 18th (Peter Hugo).

The weather in 2006 started with a fairly average spring, cooler than in recent years. May however was cold, wet and disappointing followed by a hot and sunny June when moth numbers soared. This carried on into July, another good month. The weather in August was rather mixed but September saw a return to fine sunny weather continuing right up to the end of October.

For the next part of this report I will deal with the Macrolepidoptera and Microlepidoptera separately.

MACROLEPIDOPTERA

In 'Gloucestershire Moths – A Second Account' published early in 2006, I have two lists of resident (as opposed to migrant) macromoths that have not been seen for some time. One with 43 species is of moths recorded, in many cases vaguely, earlier than 1930 that we are unlikely to see again.

A longer list with 60 species is a list of moths that have not been seen since the millennium, or well before. Some of these are in serious decline nationally. No fewer than five on this list were recorded in 2006. The previous last year is given.

1735	**Ruddy Carpet** (1998)	Cinderford 23.vi.2006 Liz and Roy Radcliffe
		Lancaut NR 24.vi.2006 George Davis
		Clifford's Mesne 7.vii.2006 David Armstrong
1873	**Welsh Wave** (1993)	St Briavels 20.vii.2006 Roger Gaunt
2036	**Dew Moth** (1986)	Swift's Hill NR 23.vi.2006 (2) Peter Hugo
		Swift's Hill NR 12.vii.2006 (8) Peter Hugo
2301	**Bird's Wing** (1986)	Wilderness, Mitcheldean 7.vi.2006 Roger Gaunt
2480	**Buttoned Snout** (1955)	Lechlade 31.x.2006 David Scott-Langley

The last was hibernating in a garden umbrella in a shed! (see Plate 20)

The fine weather in mid-summer produced large numbers of some species that are usually seen singly. Worth mentioning are:

Small Elephant Hawk-moth (37) Cinderford 23.vi.2006 (Liz and Roy Radcliffe)
Chalk Carpet (a BAP species) (23) Swift's Hill NR 12.vii.2006 (Peter Hugo)
Clouded Magpie (20) Lancaut NR 24.vi.2006 (GeorgeDavis)
Blackneck (29) Leckhampton Hill 7.vii.2006 (Jon Brock)
Four-dotted Footman (29) Haresfield Hill 24.vi.2006 (Roger Pearce).

The last record is particularly interesting as this species is rarely recorded east of the Severn. There have been other records from Haresfield Hill, otherwise the only recent record has been from Stinchcombe Hill.

BAP SPECIES

In addition to the **Chalk Carpet** and **Buttoned Snout** mentioned above, the **Drab Looper** (see Figure 6) was recorded from thirteen woodland sites. Gloucestershire must be a stronghold for this species. Two **Common Fan-foot** were recorded by Gordon Avery and myself on June 29th near Beechenhurst in the Cannop Valley, Forest of Dean. This is the only site from which this species has been recently recorded, and it is hoped to investigate other sites in 2007.

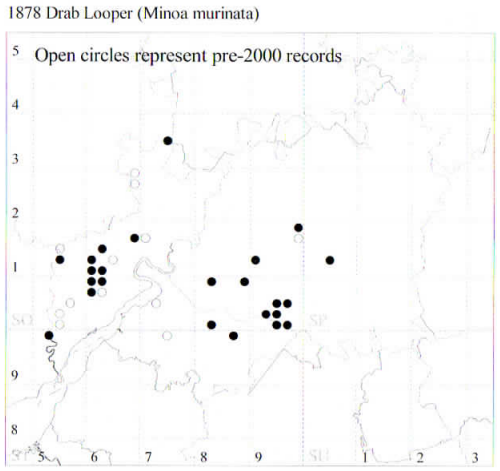


Figure 6. County distribution map for Drab Looper Moth

'NEW' SPECIES

Cypress Pug This was first recorded in 2002. There have been four further records.

Least Carpet First recorded in 2005 in VC34, this has now been recorded in VC33 at Thrupp on July 18th (Peter Hugo).

MIGRANTS

The full list of migrant species so far reported is as follows. NB The eleven Vestal from St Briavels and the fifteen Scarce Bordered Straw from Culkerton mentioned earlier only count as one on this list.

Where there is only one record, more detail is given.

1716 **Vestal** Ten sites

1720 **Gem** Culkerton 27.x.2006 (Matthew and Millie Oates)

1972 **Convolvulus Hawk-moth** Withington Woods 18.vii.2006 (Peter Hugo)

1984 **Humming-bird Hawk-moth** At least 30 sites.

1985 **Oleander Hawk-moth** Maidenhall, Highnam August 2006 (David and Win Smith). This record was accepted after a detailed telephone conversation with Mrs Smith.

1990 **Striped Hawk-moth** Old Sodbury 7.viii.2006 (WD Putt per Mike Bradley).

2051 **Four-spotted Footman** St Briavels 26.ix.2006 (Roger Gaunt)

2091 **Dark Swordgrass** Seven sites.

2119 **Pearly Underwing** Seven sites.

2194 **White-point** Culkerton 1.vii.2006 (Matthew and Millie Oates).

2195 **Delicate** Three sites.

2385 **Small Mottled Willow** Six sites.

2400 **Scarce Bordered Straw** Eleven sites.

2403 **Bordered Straw** Nine sites.

2432 **Ni Moth** Two sites.

2441 **Silver Y** At least 72 sites.

Most recorders of macromoths running light traps limit themselves to their own gardens. I should mention the smaller number who go forth and try elsewhere. These include Robert Homan, Guy Meredith, Denis and Val Jackson, Liz and Roy Radcliffe, Jon Brock, Mike Bradley and two more in particular:

Roger Pearce has, for a number of years, been recording intensively at Ringhill Farm on Haresfield Hill.

Peter Hugo has been placing his three actinic traps overnight in all sorts of places many of which have difficult access.

To all the above many thanks for turning out as you do. Garden records, especially rural gardens are useful to a point, but records from nature reserves and other good habitat are particularly useful.

MICROLEPIDOPTERA

Recording the microlepidoptera requires time and patience as well as access to quite a number of expensive specialist books. In addition a number of species cannot reliably be determined without genitalia examination. Because it is such a wide field – there are more than 1800 species of micros on the British list, of which only about a half have been recorded in Gloucestershire – there are opportunities to make new county records in all of the families of microlepidoptera.

Some of the following new county or vice-county records have been determined by visual examination, some by dissection and some by recognition of an early stage such as a leaf mine or a gall. All records of this nature have to be carefully checked.

New records

Code	Taxon	Site	Date	Recorder	Stage	New to
74	*Stigmella assimilella*	North of Leckhampton Hill	18/10/2006	Guy Meredith	Mine	Glos
104	*Stigmella magdalenae*	Crabtree Hill	15/10/2006	Guy Meredith	Mine	Glos
121	*Pseudopostega crepusculella*	Hempsted	23/06/2006	Gordon Avery	Adult	VC33

138	*Lampronia fuscatella*	Parkend Walk	02/04/2006	Guy Meredith	Gall	Glos
144	*Nemophora fasciella*	Bushy Grove near Berkeley	21/07/2006	Chris Wiltshire	Adult	Glos
265	*Bucculatrix cristatella*	Whittington Lodge Farm	10/08/2006	Robert Homan	Cocoon	VC33
273	*Bucculatrix thoracella*	Highland Road, Cheltenham	21/07/2006	Guy Meredith	Adult	VC33
274	*Bucculatrix ulmella*	Highland Road, Cheltenham	18/06/2006	Guy Meredith	Adult	VC33
275	*Bucculatrix bechsteinella*	The Apiary, Cheltenham	13/07/2006	Robert Homan	Mine	VC33
492	*Coleophora flavipennella*	Lineover Wood	26/03/2006	Guy Meredith	Case	VC33
596	*Elachista poae*	Ashleworth Ham	07/08/2004	Mike Bradley	Adult	Glos
662	*Pseudatemelia subochreella*	St Briavels Common	16/06/2005	Roger Gaunt	Adult	Glos
806	*Gelechia nigra*	Leckhampton	17/07/2006	Guy Meredith	Adult	Glos
878	*Batrachedra praeangusta*	Hempsted	28/06/2006	Gordon Avery	Adult	VC33
891	*Mompha sturnipennella*	Cheltenham St Nicolas	27/07/2006	Robert Homan	Gall	Glos
1157	*Crocidosema plebejana*	The Apiary, Cheltenham	31/10/2006	Robert Homan	Adult	VC33
1222	*Strophedra nitidana*	Saltridge Wood	30/06/2006	Guy Meredith	Adult	VC33
1247	*Grapholita funebrana*	The Apiary, Cheltenham	30/08/2006	Robert Homan	Larval	VC33
1252	*Grapholita lunulana*	The Apiary, Cheltenham	03/08/2006	Robert Homan	Adult	VC33
1438	*Trachycera suavella*	Bishop's Cleeve	17/07/2006	Jon Brock	Adult	VC33
1469	*Euzophera cinerosella*	The Apiary, Cheltenham	12/06/2006	Robert Homan	Adult	VC33
1699	*Idaea rusticata atrosignaria*	Thrupp	18/07/2006	Peter Hugo	Adult	VC33
0409a	*Argyresthia trifasciata*	Dursley	03/06/2006	Andy Bendall	Adult	VC34

1228a	*Pammene ignorata*	Wetmoor	29/05/2006	Guy Meredith	Adult	Glos
1266a	*Cydia illutana*	Brierley	02/07/2006	Guy Meredith	Adult	Glos

Special mention should be made of the tortrix ***Pammene ignorata*** in the table above. Guy Meredith gave me a number of moths to dissect at the end of the year, and some more that he considered of special interest for David Gibbs to dissect. Among those that I dissected I found a female that appeared to be *Pammene ignorata.* I sent this off to Dr John Langmaid who is probably the foremost authority in the country, and he agreed with my identification. This was only the second British record, the first having been taken at Axminster, Devon in June 1986. This is not the end of the story, for when I took the other moths to Bristol for David to work on he found another female *ignorata* and as this was taken in May whereas the one I did was taken in July (both from Wetmoor) the May one takes precedence so that we have both the second and third British specimens. It would seem that there must be a colony at Wetmoor, which is part of the enormous Lower Woods GWT Reserve.

MIGRANTS

There are three common migrant micro-moths, the Diamond-back Moth, Rusty-dot Pearl and Rush Veneer. Records for each of these run into double figures. There is a record worth mentioning however and that is ***Palpita vitrealis*** (formerly *unionalis*) recorded by Roger Pearce on Haresfield Hill on June 23rd. There have only been two previous Gloucestershire records, both in October.

OTHER MICROS

The leaf miner ***Cameraria ohridella*** which mines Horse Chestnut leaves was first recorded in Gloucestershire in September 2005. It has spread like wild-fire and Figure 7 shows how it has since been recorded. No doubt it is present elsewhere.

Another micro that seems to have expanded its range is the RDB leaf miner ***Stigmella aceris***. This moth was only known from a few trees on the roadside near Apperley. Suddenly it seems to have had a population explosion and has been found almost anywhere within a few miles radius of Cheltenham. The larva

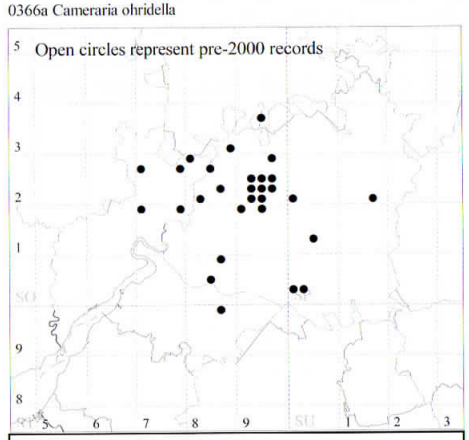


Figure 7. County distribution map for Cameraria ohridella

mines the leaves of Field Maple.

The tortrix ***Crocidosema plebejana*** in the table above was first recorded in the county by John Martin at Pilning in 2004. I had no fewer than three here at St Briavels in October 2006. Here is another moth that seems to be spreading.

Robert Homan has produced many more records, among them ***Ectoedemia quinquella*** (8 records), ***Ectoedemia heringi*** (3 records), ***Phyllocnistis saligna*** (15 records), ***Bucculatrix ulmella*** (3 records) and ***Bucculatrix bechsteinella*** (5 records). All of these have hitherto been under-recorded. A stem mine in broom made by a larva of ***Trifurcula immundella*** found near Bromsberrow is the first record for many years.

Guy Meredith probably holds the record for the number of species seen in 2006. His total is no fewer than 558, of which 340 were recorded in daytime. The majority of these are micros.

I would like to thank Guy and Robert in particular for all the work they have been doing on the micros. It is impossible to list all their valuable records and I hope I have not overlooked some really important ones.

The following contributed significant records in 2006, for which many thanks:
Gordon Avery, Simon Barker, Andy Bendall, Michael Bradley, Jon Brock, Mike Brown, David Cross, George Davis, David Haigh, Ken Heron, Robert Homan, Peter Hugo, David Iliff, Val and Denis Jackson, John Martin, Guy Meredith, Angus Moir, Matthew and Millie Oates, Steve Owen, Roger Pearce, John and Viv Phillips, Vic Polley, Roy and Liz Radcliffe, David Scott-Langley, Neil Tappin, Paul Taylor, Peter Tonks, Colin Twissell, Richard Tyler, Roger Wasley and Chris Wiltshire.

THE MARSH WARBLER – A GLOUCESTERSHIRE RETROSPECTIVE

Andrew Bluett

Introduction

The history of the Marsh Warbler in Gloucestershire is not well documented in spite of it having been a noteworthy and much observed summer visitor to the county for 100 years. Few records were available from before the 1960s and the standard reference books by Mellersh, Witchell & Strugnell and even from Swaine are painfully brief on the subject. This is quite remarkable when compared with other counties where it was recorded and written about in much detail, especially Worcestershire, Somerset, Oxfordshire and Sussex, and in light of the fact that there was no shortage of naturalists either local, or visiting Gloucestershire in pursuit of Marsh Warblers.

Initially it seemed that these observers had left little or nothing to record their visits other than a few photographs and sound recordings, but after much research a different story has emerged. Diaries, notes and journals, eggshells in mahogany cabinets together with precious data cards that detail the timescale, habitat and distribution of the Marsh Warbler have been found. Most of these records were scattered, not well known or deliberately concealed, so that it has been largely through the kind assistance of curators and keepers across Great Britain and the USA that data has been unearthed from where it now resides. For that help I willingly acknowledge and thank those people deeply.

There is no intention here to justify or condone the actions of collectors; the taking of eggs and skins throughout the time that it was done was illegal but the ironic truth is that collectors' data provided more than 80% of the information that has made this history possible.

The Marsh Warbler is now one of Britain's rarer species, and in Gloucestershire its status as "rare passage migrant" is correct and the most apt description. Sadly, we are the poorer for that. In the 21st century the Marsh Warbler is little more than a fond memory for those that knew it previously, or a hoped-for "tick" to the modern observer. It is therefore with a touch of sadness that this retrospective is written in tribute to a delightful little bird.

An Enigmatic Bird

The Marsh Warbler is in many ways a mysterious creature; easily confused with its near relative the Reed Warbler unless singing, and especially so on migration.

The question of first identification was confused and various authors offered diverse but more or less incorrect opinions. Christopher Swaine however wrote in Birds of Gloucestershire (1982) that "it was not recognized as a distinct species until 1798" and whilst he quotes no source to substantiate this, the reference must be to Bechstein and his identification of Marsh Warblers in Germany. From a British point of view, S P Saville wrote in The Zoologist of 1861 giving "Notice of the discovery and capture, for the first time in the British Isles, of the Marsh Warbler (*Calamorpha palustris*)" and Eric Simms (NN71 British Warblers) mentions Blyth separating it from the Reed Warbler here only as late as 1871. These accounts are somewhat contradictory and there is other evidence to suggest that Marsh Warblers may have been recorded in this country from about 1840 onwards.

The most questioned and least satisfactorily explained matter however is that of the loss of Marsh Warblers from Britain whilst during a similar period, the population expanded far and rapidly through mainland Europe. There is no clear evidence to explain why this might have been and it is probably too late to discover the truth. It is difficult to carry out such research retrospectively, so in this respect at least, the Marsh Warbler will remain something of an enigma.

A National & International Summary

There are sufficient records with substantive provenance to show that breeding has been reported from more than 20 English counties. Historically the most significant populations were in Kent, Sussex, Somerset, Worcestershire and Gloucestershire, the latter two accounting for more than 60% of the population over the span of it's tenure to date. Whilst there is still a small population in Kent and possibly a few on Humberside, in most regions the status of the species has been reduced to scarce, occasional, sporadic or other equally depressing adjectives.

In the Western Palaearctic however, the Marsh Warbler is not in the least rare. Its distribution in the breeding season covers a vast area bounded in the south by line drawn roughly from Brittany in north western France south eastwards to eastern Turkey, Iraq and Iran. North of that line it is found throughout Europe in suitable habitat east to the Urals and north to Norway, Sweden, Finland and Russia beyond the Arctic Circle as far as latitude 67°. The population within that area is estimated to be between 2.5 and 3.2 million pairs. The dynamics of the European population since 1900 has been of an almost uninterrupted expansion northwards reaching Sweden in the 1920s, Finland in 1944, the Leningrad area by the 1960s, Norway in the 1970s and the Arctic Circle by the 1980s.

Geographical Consideration of Gloucestershire

For the purposes of this account the records under consideration are by definition historic and in order to properly and consistently consider Gloucestershire as it was when the Marsh Warbler's story began, I have ignored the modern convention of vice counties and rely on the boundaries of "old" Gloucestershire when the county contained the northern half of Bristol and district, circa 1900.

Distribution in Gloucestershire

To Marsh Warblers, political divisions and vice-counties were of no consequence, the truly important features were geophysical, that is to say the wetlands and waterways along which the populations were formerly distributed, and these were continuous across and without the county boundary. Consequently, each part of the population within Gloucestershire was linked to those in adjacent counties. The very small numbers of birds in the north east were essentially a part of the Evenlode, Windrush and Cherwell population in north Oxfordshire, the Thames area birds were connected to the Berkshire, south Oxfordshire and Wiltshire populations mainly along the courses of the Thames and Kennet. In the south west the birds close to the Avon were probably an extension of the Thames population and also connected to the Somerset birds. From there it is not difficult to project a line across the Severn estuary to the Wye and Usk, leading into the later Monmouthshire and Herefordshire sites. The upper Severn population around Tewkesbury was linked along the Severn into Worcestershire north to the Teme and east along the Avon into Warwickshire.

Nowhere though was the Marsh Warbler's distribution fully continuous; there were significant gaps between loose colonies or "clusters" of breeding pairs in spite of there having been at least some apparently suitable habitat between them (see Plate 21). There appeared to be few, if any, differences between the areas in which there were Marsh Warblers and those where there were none. This is comparable with other species; the Corn Bunting shows similar tendencies even where it is most numerous and *in extremis* maintains quite isolated populations as are those on the Outer Hebrides.

South East and South West

The earliest definite Gloucestershire record comes in 1886 from Siddington, just to the south of Cirencester, and arises from a nest near the Thames and Severn Canal. This is significant for being the first record, but its location is more closely connected to the Oxfordshire/Thames population of Marsh Warblers than anything else. The nearest confirmed River Thames record comes from Guy Charteris, who, whilst in pursuit of Cuckoos on 14th June 1936, found a cuckolded Marsh Warbler nest for which the data card states "near Lechlade". Whilst Lechlade itself is in Gloucestershire, reading the data in conjunction with other notes by Charteris, reveals

that this site was in fact adjacent to the Radcott Inn at Radcott Bridge and therefore in Oxfordshire. The hamlet of Radcott is downriver from Lechlade and 3 miles from Gloucestershire at the nearest point. The implication is that there were more birds upstream on the Gloucestershire Thames, but this is unproven. A few miles north though in 1955, two or three pairs bred near "Constant Pit" now Pit 6 in the Cotswold Water Park (the site of the Gateway centre) which is only a few metres from the Thames Severn Canal and 4.5 km south of Siddington. More singing males were located nearby between 1961 and 1977.

To the south west in the Bristol area, there were several early records. The 1899 "Birds of the Bristol Region" reported Marsh Warbler as being "a summer migrant, arriving in late May, known from four localities in the past six years – HCP, DTP". The localities are not precisely identified, described only as "...the Avon, between Bristol and Bath". In all probability, they were in and around the Withy beds at Saltford (Proc. of the Bristol Naturalists Society Vol IX, 1899) which were mainly south of the river, though there were Withy beds to the north on the Gloucestershire side. Two other sites are mentioned as being "near Avonmouth", probably in the wet farmland and Withy beds at Hallen Marsh where H C Playne noted that a nest had been photographed in 1898. There is also a confirmed record of a nest at Patchway on 19th June 1909 "...in a Bean field". H H Davies, the Bristol area recorder noted a "passage" record at Little Stoke, near Patchway, where he was a farmer, on 15th June 1935, though he regarded the Marsh Warbler as "extinct" in the region by 1948.

The North East

Having found Marsh Warbler by the Thames in Oxford in 1889/90, the Rev. W Warde-Fowler travelled to the Bernese Oberland specifically to familiarise himself with Marsh Warbler in order to be better able to identify and research them at home. His experiences there "...caused me to pay attention to a large Osier bed in the extreme north-west corner of Oxfordshire which was overgrown with Meadow Sweet". On June 5th 1891 he was passing the Osier bed when he heard a definite Marsh Warbler and wrote "It is the Evenlode which flows past these Osier beds, dividing the county of Oxfordshire from Gloucestershire". He asked H C Playne to stay with him at Kingham and together they searched there, and along the Windrush at Bourton on the Water where the river was "bordered by gardens, meadows, orchards, Osier beds and everything that could make a Marsh Warbler happy". He concludes "We will not jump to the conclusion that the Marsh Warbler is really common and has been constantly overlooked!" On July 15th 1891 "I (Warde-Fowler) ...made one more attempt to find the nest in company with Mr Playne who had bicycled over from Minchinhampton, but we were again unsuccessful. The Osier bed is of recent planting; I have myself skated on (frozen) floods in the very place it now occupies".

The localities of the singing birds are not pinpointed but there were Withy beds on both sides of the Evenlode between Kingham and Bledington. The birds were almost certainly in both Oxfordshire to the east and Gloucestershire to the west of the river. There was sufficient belief in Warde-Fowler's mind that more were to be found for him to make the effort to carry out further searches along both the Evenlode and Windrush and whilst he didn't record the finding of a nest in Gloucestershire, he was certain that the singing birds he discovered were breeding. Interestingly, his companion, H C Playne, is the same individual linked to the Avon records between Bristol and Bath.

The Severn Vale

In the Severn Valley proper, from 1900 onwards, came an increasing number of discoveries of Marsh Warblers by the Severn, the Sharpness and Stroudwater Canals, the Rivers Frome and Leadon, the Coombe Hill Canal and northwards to Tewkesbury.

From south to north, a population cluster was centred on the Saul Junction where the Stroudwater Canal (being the western end of the Thames and Severn Canal) crossed the Gloucester and Sharpness canal to the Severn in close proximity to the River Frome. Between and alongside the Stroudwater Canal and River Frome there were several long and narrow withy beds with adjacent beds of rank vegetation. Along the Sharpness canal there were again beds of rank vegetation on the canal edge and embankments and in the adjacent ditches, rhynes and field edges. Just to the north of the junction and on the east side of the canal an area of ground in one of the fields at Packthorne Farm was utilised by the canal and docks authorities for the dumping of dredged sludge. The viscous mixture was pumped from barges over the canal embankment into the field where it spread and settled, drying out and becoming a fertile ground in which stray Nettle and Dock seeds germinated, thus forming a six acre habitat colonized by Marsh Warblers that became known as the Packthorne sludge dump.

To the west of the Sharpness canal stood an old and semi-derelict withy bed formerly harvested by the Coles, a renowned family of basket-makers from Quedgeley. This was leased by the RSPB from the canal company and became the Moreton Valence Bird Sanctuary. It was monitored for a number of years until the lease was relinquished in 1992. At its height in 1954 Peter Conder reported that the sanctuary held 9 singing males and at least 4-5 females. A short way upstream on the northern edge of the cluster was yet more rank vegetation adjacent to the Parkend Bridge which held a couple of nesting pairs.

Away from the junction there were a few more isolated individual pairs at Frampton and on the Cambridge Arm to the south, and possibly more down to Sharpness and Purton. To the west, Framilode held a few pairs and there was at least one recorded nest each at Groundless Pool and Stonebench to the north. At Eastington Marsh Warblers were found nesting on at least two occasions and there is even a record of a nest at Nympsfield, the eggs from which reside in the E C Stuart-Baker collection. It is unlikely that the site was actually in or around Nympsfield proper; it was far more likely to have been in the valley below, close to the canal.

The next clustered population to the north was distributed around Alney Island and Walham on the western edge of Gloucester city (see Plate 22). At the southern edge were the withy beds at Llanthony Brickworks and rank vegetation at Hempsted and Lower Parting where Gilroy found several nests as early as 1906. The variety of habitat types here accommodated pairs in the withy beds proper, the surrounding rank vegetation and along the riverside tow paths. Alfred Thomas brought a number of collectors to this site including the Chance brothers. The area however was not densely populated by comparison with others and was rather looser and less reliable.

The parting of the river led then to two distinct areas in the east and the west. On the western arm, the withy beds at Over Bridge and the rank vegetation at the junction of the Leadon with the Severn accounted for perhaps 10 pairs with a few more distributed along the Leadon, the adjacent mill race and the Hereford & Gloucester Canal towards a pair of withy beds at Lassington. It was in the Lassington withy beds that John Walpole Bond & Colonel Richard Sparrow in company with Alfred Thomas and Thomas Durrett found at least six pairs in 1913. From Over northwards, the river bank alongside the road held a few pairs up to Maisemore and another area of Withies and rank vegetation by Maisemore Weir (Staddies Pit) held more.

On the eastern arm of the river from Westgate through Walham to Sandhurst and Ashleworth was perhaps the most productive area of all. The key to this was a number of withy beds cultivated in the clay pits that formerly provided the raw materials for the Severnside, Barnwood and Walham brickworks. Around the withy beds were scrubby field corners, beds of rank vegetation dominated by Nettles, Meadowsweet, Willowherb and Umbellifers. Corncrake and Quail were residents of the meadows and the Marsh Warbler shared its habitat with nine other species of Warbler.

At least one nesting pair was regularly to be found on the riverbank at the north end of The Quay behind the slaughterhouse. Just upstream from Westgate Bridge was the great withy bed at Pool Meadow, also known as Shiners Perch. This was bordered on its southern edge by a timber mill and boatyard and straddled the railway viaduct adjoining Pump House (or Black) Bridge. This withy bed varied in quality from year

to year and might hold six or more pairs, but on occasion only two. At Walham, around the two public houses, The Jolly Waterman and The Globe were several more withy beds. Each was named, though the names changed over time depending on who was maintaining and harvesting them. To the west were Cressy's Perch and Tandy's Pit on the site of the former Barnwood Brickworks, to the east progressively were Robinsons Perch ("Robbies"), Walham Perch, "The Jolly", Longford Cement Works, Globe Pit, and at the north end of the stretch, opposite the Upper Parting on the site of the Tar Works (now Ronson's Architectural Reclamation yard) was another large withy bed, the "Nine Acres".

To the east of Walham close to the electricity sub-station was a large withy bed, generally known as Machine Pit, which held six or more pairs in its hey-day. This pit is now bisected by the Gloucester northern by-pass, the southern end still exists as a derelict, but obvious pool containing ancient Willows and the northern half, cleared of its withies, is a coarse fishing pond. This site was perceived to be dangerous to visit by those who dared venture there since it bordered the gypsy encampment, the occupiers of which were suspicious of strangers and rather territorial.

Upstream from Walham towards Sandhurst stood another withy bed, the "Top Yard", followed by Sandhurst Pit, later to become the Gloucestershire Wildlife Trust reserve, and then another un-named smaller pit a few hundred metres further north. Finally, opposite The Boat at Ashleworth Quay and close by the ferry, two more withy beds held another half-dozen pairs. A few pairs of Marsh Warbler occasionally took up residence between the named sites and odd pairs were often on the river bank to the north of Ashleworth.

Upriver beyond Ashleworth a few pairs were to be found at Wainlode, on the Coombe Hill Canal, near Haw Bridge and on the Long (or Handkerchief) Pool below Apperley. Following that, a long stretch of narrow withy beds and rank vegetation extended from the White Lion at Apperley past the clay pits below Barrow Grove to Chaceley Stock and the brickworks there. A few pairs were occasionally to be found on the Town Street side or in the withy beds at Norton to the east of the river, but the overall impression of this area was of discontinuous and widely scattered small sites holding no more than one or two pairs each. In spite of the low numbers of pairs, birds were to be found over a longer timescale here than most other sites. The first record is of a nest found by a Mr Porlock on the Coombe Hill Canal in June 1917, the eggs from one canal side nest are still held in the Oxford University Museum as part of the Oliver Vernon Aplin collection, and the nest of the last pair by the canal was chanced upon by a Bristol entomologist in 1972. The Apperley to Chaceley stretch was one of the easier sites to survey and study, the narrow nature of the habitats between the river and meadows meant that pairs of Marsh Warblers positioned at

intervals along the tow path could be located by the singing males and territorial boundaries quite readily determined.

The final clustered group of sites was that at Tewkesbury which extended from the Lower Lode, through Severn Ham to The Mythe at the border with Worcestershire. The Ham was a consistent site which usually held 6 or 7 pairs of Marsh Warblers. Guy Charteris recorded finding 70 nests here over a 10 year period from 1929 and noted "...at least nine pairs here" in 1939. Sylvia Holland counted seven singing males in June 1959. Elsewhere in the cluster Lower Lode usually held two or three pairs and The Mythe a similar number.

Outside the main clusters, there were occasionally "erratic" sites, one such being the Dumbleton Bean field colony of seven pairs found by Charteris in 1916. This was extraordinary in that Dumbleton is a hamlet surrounded by elevated dry farmland and isolated some 9 km from the River Avon.

As mentioned previously, there is a marked absence of birds from extensive areas between the clusters, at least some of which otherwise appeared to be perfectly suitable habitat. This anomaly in the distribution of the Marsh Warbler is something that is not fully understood. It is striking that downstream from Lower Parting there are no recorded sightings or instances of nesting from any part of the west bank of the Severn down to Chepstow and the Wye. Much of the ground is less attractive than the east bank, but there were patches of suitable habitat at Minsterworth Ham, Minsterworth proper, Rodley, Newnham, Awre and the Lydney/Aylburton Warth areas, none of which were more than a few hundred metres across the river from key sites used continuously for several decades.

Population Estimates

It is difficult to be precise about how many Marsh Warbler pairs resided in Gloucestershire. There was no truly representative survey or count carried out until long after the decline had set in, so that the best estimate can only be achieved by extrapolating numbers from the available information. This is complicated by the fact that not all sites were known, or visited, by any observers in any given year, or even any given decade. Various conclusions have been drawn over the years; R J B Christian listed estimates against known sites which exceeded 80 pairs, K D Pickford and Charlie Whitfield attempted to count possible totals and arrived at "well over 60 pairs" but they considered the northern end of the vale only. Swaine comments that "...up to ten pairs or more were to be found nesting in each of several favoured sites. Birds continued to breed in eight or ten localities from Purton to Tewkesbury up to the 1930s or later." It is difficult to see just exactly how many pairs this represents, but it is unlikely to be less than 60. The greatest number of confirmed breeding

records in any single year was 24 in 1954 but this total came from only 40% of the possible sites. It may not be very scientific, but taking from that measure 1% equalling 0.6 nests, a figure of 60 pairs is again achieved.

Much of the confirmed and detailed data comes from egg collectors, and they readily admit that they either could not, or did not discover all of the possible nests. This indicates that for any given location, the confirmed and/or probable records may still be underestimated. However, by taking each site or cluster and accumulating the maximum numbers found there in any year, the following figures are calculated.

Site or Cluster (proven & probable nest records only)	Earliest confirmed Year	Latest confirmed year	Single Year max number
Saul & Whitminster area	1914	1959	34
Lower Parting, Llanthony & Hempsted	1914	1934	7
Over, Lassington, Maisemore & The Leadon	1913	1968	21
Walham inc Westgate, Sandhurst & Ashleworth	1905	1973	42
Haw Bridge, Wainlodes and Coombe Hill	1907	1972	9
Apperley, Chaceley, Lower Lode & Tewkesbury	1929	1977	23
Thames area, CWP, Undefined and others	1886	1955	16
Potential maximum number of pairs if all sites fully occupied in any given year			152

Being objective and realistic and taking into account weather conditions, the state of the withy beds and other environmental factors, together with the near certainty that not all sites were occupied concurrently, a fair population estimate for the period between the 1920s and late 1950s would probably be in the range of 65 - 85 pairs, with some exceptional years perhaps producing up to 100 pairs.

Habitats

The habitats for the Marsh Warbler in Gloucestershire fall into three distinct types.

The least used habitat was agricultural; crops such as Rape, Beans and to a lesser degree, the cereals. There are only a few definite records of pairs in crops; Christian mentioned seeing singing males in field corners of Oats & Rape in the upper Severn in the 50s and 60s and Charteris discovered a small colony of seven pairs in a field of Beans on the outskirts of the village of Dumbleton in June 1916. H H Davis found a pair nesting in a corn field adjacent to the A38 at Moreton Valence on 24th June 1934

and there is the 1909 Patchway record from a Bean field. These are all comparable with Stanley Lewis's nest in Barley in Somerset and Harthan's Worcestershire Bean field birds in 1938, but Marsh Warblers using crops seem to be far more common in Europe ("....in cultivated fields chiefly of all kinds of cereals. It is particularly frequent in Rape (Brassica napus)" – Poland, 1949, Bronislaw Ferens). In June 2006 in Belgium, the author found a pair in a dry ditch between two fields of Barley and close to the Dutch border there were three singing males in scattered fruit trees along a rough field edge which were almost certainly nesting in the weedy edges of the wheat below the trees.

In a Gloucestershire context, the two more "normal" habitats were beds of rank vegetation associated with watercourses but in the dryer high marsh zone, and the traditional Withy beds found along the Severn and its tributaries, the canals, and the eastern catchments of the Thames, Windrush and Evenlode.

The rank vegetation was dominated by Meadowsweet, Nettle, Dock, Willowherb and Umbellifers. The rest of this plant community is filled out with grasses, phragmites, sedges, etc. The general picture is consistently of a deep bed of vertical plants, providing a variety of cover and resistance to the effects of wind. On the fringes there were isolated trees, Hawthorn (*Crataegus monogyna)*, Willow *(Salix spp)* or Alder *(Alnus glutinosa)* used as song posts.

Perhaps the most important habitat type though was the Withy beds. On the upper Severn from Gloucester to Tewkesbury, they were a by-product of the brick making industry. Even a cursory glance at the Ordnance Survey maps from around 1900 shows at least seven brickworks within sight of the cathedral churning out the millions of bricks required to build the expanding sprawl of Gloucester, Cheltenham and beyond.

The sequence of excavating brick clay close to the river-bank resulted in pits that would hold water and begin to accumulate silt that could then be planted with Osier stakes *(Salix viminalis)* at "...about a yard-and-a-half between". The stakes would readily root and be left to grow for 2 or 3 years before harvesting began. The "stools" or withy stocks had the appearance when mature of being pollarded willows in miniature, perhaps 12 – 18 inches high. The beds had a life of 20 years or more, with best production expected after 5 or 6 years, and a decline after perhaps 15 years. The bed could then be completely cut out and re-planted with fresh stock and the harvesting process would resume when re-established. In spring the Withy beds would fill with Rushes, Reed Mace, Nettles, Docks, Tansy, Iris, and Meadowsweet, the dryer banks would have some Willowherb and Umbellifers. This under storey grew clean and free from Cleavers or Goose Grass in most years, since it was

normally cut and cleared out before the withy harvest to aid access. What wasn't cut would be trampled flat and the following year's growth was enabled to start completely afresh.

This was a microcosmic environment managed to a high degree for the withy production and as such, it became an artificially enhanced super-habitat hosting a denser population and a large number of nests over an extended period of years. The decline of the Marsh Warbler from its numerical height coincides with the decline in the production of Withies. Garden wildlife surveys carried out primarily in search of invertebrates have shown that one of the most important factors supporting both variety of species and numbers of specimens is the volume of the herbaceous growth. It was found to be even more important than variety of plants or that the plants were native in origin. Perhaps this indicates why the Withy beds were so productive. The clean and fresh nature of the rank under storey brought about by the management regime was good, but the volume of the withy canopy above made them even better. Mike Smart refers to this "...resembling a rainforest in miniature, buzzing with insects", Christian mentioned "....emerging from an insect infested withy bed sweating and stinking and bitten to death by mosquitoes!"

Beyond these habitat types, many authors and reference books list orchards among the Marsh Warbler's nesting habitats, and yet, within the data and information from almost 600 nest records, not a single one came from anything remotely resembling an orchard until a very old report in British Birds (Vol III, p157, 1909) came to light. This article recounts the experiences of Messrs W Davies and F Coburn discovering Marsh Warblers in Worcestershire. Davies says "I found them chiefly along hedgerows adjoining fields of wheat and beans. There was in most cases a ditch along the hedge, in some cases with water, in other cases dry, in all cases there was a luxuriant growth of coarse herbage." The following paragraph then states "Mr F Coburn spent a day or two in the same neighbourhood, and found a pair breeding on June 13th in an old orchard .....used only for grazing cattle and as a fowl run". This one reference to an Orchard seems to have become a much quoted "fact". It was particularly surprising that not a single record from Gloucestershire emanated from an orchard, since several core areas of the Marsh Warbler's distribution were surrounded by ancient orchards and patches of fruit trees on both banks.

Plant Types and Nest Positioning

K D Pickford maintained that Meadowsweet was the most favoured host plant for the Marsh Warbler's nest. Whilst this plant is synonymous with Marsh Warblers in most locations, he was not entirely correct in this assertion. In Sussex, Walpole Bond found 144 nests, of which only 51 were attached to Meadowsweet. In Gloucestershire, from 184 nests in which the plant species is identified, 45 were in Meadowsweet, 25 in

Willow (Withy stocks), 59 in Nettle, 7 in Cow Parsley and 5 in Willowherb; the remaining 43 nests being supported by a mixture of other plants including Phragmites, Dock, Bramble & Rose, coarse Grasses, Dogwood, Figwort etc. Recent records from Kent have the nests most often associated with Willowherb.

Many nests were supported by a combination of plants which together provided a balance of vertical support and lateral stiffness. The nest being a loose structure, not unlike that of Blackcap or Garden Warbler and hung from the vegetation by its "basket handles" was inclined to stay relatively level under wind load, thus avoiding spillage of the contents. This is an important factor in the Severn vale where the predominant south-west wind meant that many nests were more prone to wind damage than those in other areas. There is also some correlation between nest height and nest failures by wind damage. Kelsey & Green found that in Worcestershire the least experienced birds were inclined to build higher and were therefore at more risk, Pickford & Christian similarly found at Walham that several nests built higher up in the vegetation, or in a plant monotype (especially Nettles and Docks with a relatively large surface area) spilled at least one egg from the clutch.

Of 57 Gloucestershire nests with sufficient data to be able to determine the heights above ground, the average was 28 inches (710mm), the minimum 8 inches (200mm) and the maximum 54 inches (1370mm). 31 nests (57%) were at, or below 24 inches (600mm), only 6 (10.5%) were at or above 40 inches (1015mm). Plant species did not seem to affect the height of the nests in the sample, Meadowsweet and Nettle figured in both the lowest and highest 20% of the range, the lowest two nests were in mixed Nettle & Meadowsweet, the highest nest was in Willowherb.

The Historical Records

The documented story of Gloucestershire's Marsh Warblers begins with a single nest discovered close by the Thames & Severn Canal by a son of Henry Plummer, owner of Plummer's Farm on the outskirts of the village of Siddington. This discovery was made in June 1886 and whilst the boy was ignorant of the true significance of his find, it was recognized and reported in The Zoologist in 1887 by Herbert W Marsden. The next confirmed record comes from a quite different source in the form of a clutch of eggs taken from a nest "near Gloucester" in 1900, and now held as part of the Joseph Parker Norris collection in the San Bernardino County Museum in California. The clutch was taken, passed to a dealer (possibly Stevens' salerooms in London) and sold on to Norris in the USA.

During the last 10 years of the 19th century and the first 10 of the 20th century, The Rev. W Warde-Fowler, as noted above, was making his searches in the north east of Gloucestershire in company with Herbert C Playne, who co-incidentally was finding

them on the Bristol/Bath Avon in the south west. Playne hailed from Minchinhampton where his father Edward and uncle Arthur were wealthy brewers, one a county councillor, the other a JP. Herbert was a student at University College Oxford and all three sponsored, subscribed and contributed to Witchell and Strugnell's Fauna and Flora of Gloucestershire.

In 1905 the first of the collectors arrived in the form of Norman James Gilroy, later to achieve fame, as the discoverer of the "secret of the Greenshank". In spite of his nefarious intent, Gilroy was an excellent field naturalist and a pioneer in discovering and describing the breeding cycle of Greenshanks, and in finding and recording high arctic waders on their breeding grounds in the Pasvik Valley in arctic Norway & Finland. His diaries are fascinating and document not only what he pursued, but many incidental species as well as social history of the diverse places he visited. On one of his trips to Gloucester he mentions walking from the railway station to Walham and noting Cirl, Yellow and Reed Bunting, Wheatear, Stonechat, Redpoll and Red-backed Shrike along the railway embankment! He was followed soon after by Alexander Macomb Chance and his brother, Edgar, also to achieve lasting fame with his remarkable work on the breeding cycle of the Cuckoo, most of the research being carried out at Hartlebury Common in Worcestershire. These three between them found many Marsh Warblers breeding in the rank vegetation and withy beds from Frampton in the south to Ashleworth in the north, particularly at Llanthony Weir, Hempsted and Lower Parting, Westgate, Walham and Sandhurst between 1905 and 1918.

Cecil Stanley Meares and Douglas Hadley Meares were introduced to Gloucester "...through the courtesy of Edgar Chance". These two again found many nests in the stretch of riverbank from Llanthony to Ashleworth. 1913 brought yet another pioneer researcher and documenter of birds with the arrival of John Walpole Bond. Bond travelled out to the west of Gloucester to a series of withy beds at Lassington, on the banks of the Leadon and below Lassington Wood, in company with Col. Richard Sparrow where they found at least 6 pairs of Marsh Warblers nesting in the course of a couple of hours.

All of these men and many others besides were assisted and guided by one Alfred Thomas and his assistant, Thomas Durrett. Thomas was a taxidermist with a shop at 9 College Court, between the Cathedral precinct and Westgate Street. He went on to achieve immortality by creating most of the major taxidermy exhibits in what is now The National Museum and Galleries of Wales in Cardiff for the princely salary of £4.10s a week. More of his work resides in Manchester University Museum and a pair of Gloucester Marsh Warblers in a diorama constructed by him on the recommendation of Walpole Bond, is held in the Booth Museum in Brighton. Durrett

was a local postman who by dint of spending much of his life delivering mail around Walham and Sandhurst was able to help pinpoint likely pairs of warblers for Thomas to offer up to his clients.

Through the 1920s to the Second World War a small but determined series of collectors visited Gloucester with the same purpose in mind, to procure a set or two of eggs and to study Marsh Warblers in their habitat. There is no doubt that what Alfred Thomas taught Walpole Bond enabled him to go on to discover the colonies in Sussex which he studied intensively during the 1920s. From that research he was able to produce his authoritative and very accurate writings on the species in British Birds and "A History of the Birds of Sussex".

Further to the north in the Tewkesbury area, Guy Lawrence Charteris discovered 70 nests over a 10 year period from 1929 to 1939 with the aid of an assistant who gloried in the unlikely name of Tom Buggins. Charteris also discovered two quite different situations, a small colony of 7 pairs of birds in a bean field on the outskirts of Dumbleton, and a single nest in a gravel pit on his estate at Stanway, both of these sites being out of the norm and several kilometres from the river. Charteris's primary interest was the Cuckoo, and whilst he examined many nests which he refers to in his notes and journals, he wrote very little detail unless they contained a Cuckoo's egg. On finding his first cuckolded nest at Severn Ham, Tewkesbury in June 1939, he notes two comments, "At least 9 pairs of Marsh Warbler here" and later "MW/Cuckoo No 261 - Six Marsh Warbler nests only found this year in two visits in bad weather. Since 1929 I had examined about 70 nests here and given up hope of a Cuckoo's egg. At last not only a Cuckoo's egg, but one that goes extraordinarily well with the Marsh Warbler's eggs".

By 1925 the search had partially shifted south from Gloucester with the coming of Montagu Leighton Ridgway, a solicitor from Lancashire who moved to practice in Herefordshire and took a particular interest in the Marsh Warblers around Saul Junction, Whitminster and Parkend Bridge. Gilroy discovered nests at Frampton in 1918, but there is little detail attached to these and very little else of note before Ridgway's records in this vicinity. Ridgway was in contact with Edgar Chance and with K D Pickford and others, but his most notable achievement was in personally finding at least 63 nests between 1925 and 1935. No other individual found more.

Collectors though, were by no means the only visitors, Kearton had visited before 1910, T A Coward came in 1926 and much later in the 1960s, Eric Hosking came, all of these three were in pursuit of photographs. The sound recordist Victor C Lewis came to Walham in 1963. He acknowledges the help afforded by Sylvia Holland in

locating a singing male and on his disc the bells of Gloucester Cathedral are clearly audible in the background.
Coward records how he visited "a thriving colony" describing "The situation of some of the nests we saw was interesting, a small Withy bed, with a smoking brick kiln on one side, and the town tip, also smoking, on the other". This is a direct reference to the general view of the riverbank around Walham. Far from being the pastoral scene recorded in Frances Frith's photographs with Poplars and water meadows leading the eye to the stately Cathedral, it was an unmitigated industrial scene with brickworks complete with kilns and smoking chimneys, timber yards, boat yards, a knackers yard and slaughterhouse, the tar works and wharves separated by patches of waste ground and at the same time all connected by a much used towpath, constantly trodden by horses and family teams of human draught horses pulling barges.

By the late 1930s, home-grown collectors and naturalists appeared on the scene. Alfred Thomas the procurer was replaced by Charles Joel Whitfield, the guide to all who wanted to see Marsh Warblers (see Plate 23) and other species on the upper Severn. Ridgway passed on the baton to Kenneth Pickford, a local building contractor who pursued Marsh Warbler with vigour throughout their range in the county in company with Arthur Whittaker, the Sheffield architect and many others. Charlie Whitfield was accompanied on searches by Dr Oliver H Wild, curator of the city museum during WW2 whose egg collection now also resides in the USA.

The Second World War though with increased security and restricted travel provided a period of respite for the Warblers and enabled them to increase to the maximum population levels they were able to achieve. Charlie Whitfield commented that "...they were quite common in the late 1920s", and believed that there were at least 50 pairs between the Lower Parting and Tewkesbury in the 1940s. This in fact was probably a conservative estimate, numbers gleaned from various sources and especially the collectors, points to more. Wartime industry also brought about a strange curiosity in that the nests of the Marsh Warbler (and other species) were constructed with the aid of an alien material. The use of "window" for blinding radar was being developed in the skies over Worcestershire and Gloucestershire. Window (in the modern age called "chaff") was something akin to Christmas tinsel, small ribbons of aluminium foil that could be dropped from pathfinder aircraft to hide following bombers from the ground defence radar operated by the Germans. This material drifted down to earth where the warblers collected it and wove it into the fabric of their nests. Charlie Whitfield mentions finding nests that were almost entirely wreathed in the silver foil and stood out like beacons amongst the greenery.

After 1950 the Withy beds were beginning to fall into decay and becoming overgrown, plastics and other materials developed during the war had overcome the

labour intensive traditional methods of making crates and baskets. Less people and animals used the riverbank and the undergrowth there began to change its character, it was no longer cleared or trampled so that it became less "clean" and was more inclined to be contaminated with Cleavers and Bindweed. Charlie Whitfield said "Never look for a Marsh Warbler where there are Cleavers; where a dried stem of Parsley or Nettle from last year shows above the new growth, look there!" The brickworks were largely gone, agriculture was changing, drainage and canalisation began to lower water levels and the ponds stagnated and progressively filled and dried out.

Unbeknown to many, the decline had begun, albeit only slightly, and at first slowly. Several sources noted this, in spite of Pickford's assertion at the Jourdain Society dinner on 9th July 1959 in Salisbury where he said "I believe that the Marsh Warbler is far more widely distributed over the southern half of the country in suitable localities, than the books and authorities would have us believe. Its range extends, unbroken, save by unsuitable terrain, right through the Severn Valley, from Berkeley in the south, to some miles above Tewkesbury in the north. There are well known areas of colonization in Somerset and right across the country through Oxfordshire. Hereford and Worcestershire can also claim a few pairs, as can a dozen other counties in southern England. Through the last 30 years, in my own experience, no variation has been made to the status of the species in my area. We still have just as many Marsh Warbler breeding with us as were present in my first season in 1929".

Pickford could not have been more wrong. Other species in the area had also begun to disappear, Red-backed Shrike, Cirl & Corn Bunting, Corncrake and Quail were going or gone and the Woodlark would soon follow.

During the 1950s others came upon the scene with a different reason for seeking out Marsh Warblers. Peter Conder of the RSPB visited the marshy withy bed in 1954 which had become the Moreton Valence Bird Sanctuary, to the west of the Gloucester-Sharpness canal, mid-way between Saul Junction and Parkend Bridge. He noted 9 singing males and 4-5 females; Bruce Campbell found a nest and counted 5-6 singing males in 1959. Morgan Phillips-Price MP searched them out north of Gloucester, though seems to have written publicly only about Chiffchaff, Willow Warbler and Nightingale in British Birds. Phillips Price worked the Apperley area in his researches, Christian recalls meeting him there "...in a vast Nettle bed on the banks of the River Severn near Tewkesbury where he was searching for nests in those halcyon days when disturbance of a bird was not an anti-social and illegal act. He suddenly appeared through a haze of head-high "stingers" grasping a giant sickle with which he was laying waste to the offending urticas as if they were the very enemies of socialism itself!" Bren Owen of the North Gloucestershire Naturalists Society had

reservations about this behaviour and noted in his journal that he wished Price would "stay out of the undergrowth" for fear of disturbing the birds. Christian searched them out in many sites and wrote on the breeding biology in the Oologist's Record. Brenig Owen, Sylvia Holland and others in the North Gloucestershire Naturalists Society were watching and counting. The shift towards monitoring and conservation was about to become a reality, albeit rather too late.

In September 1968, Pickford gave an update on the status of Marsh Warblers to the Jourdain Society at their dinner at The New County Hotel in Gloucester, and at which the curator of the city museum, David Dartnell, was present. He first quoted from his earlier offering of July 1959 and then went on to say "I wish that this statement were true today. Sad as it may be, we must accept that the Marsh Warbler has almost, if not completely, vanished from our shores. It is probably true to say, in retrospect, that even while I was making my generous claim in Salisbury nine years ago, the exodus was gaining momentum. Statistics now show that at about this period of time there was a reduction in the number breeding on Sedgemoor and the most westerly penetrations had already been abandoned. Each year since that time has produced a clear indication of the drift back towards the east and in more recent times, we have watched it move along the valley of the Severn, by the early 1960s the birds had left Whitminster, Saul, Packthorne (sludge dump) and Moreton Valence. In 1963 there was no nesting west or south of Gloucester and each year since has continued the trend of evacuation".

Christian agreed with this general picture, his notes reveal that there were just a few pairs scattered about to the north and west of Gloucester, but none south of the city. Phillips-Price concurred; both commented on the paucity of occupied sites and lack of management of the now defunct withy beds. From the late 1960s through the 70s and into the 1980s the records of authenticated birds and breeding occurrences become ever less frequent and more scattered. Charlie Whitfield managed to find and show a few nests at Walham to Brenig Owen, the NGNS members found a few more around Sandhurst, Apperley and Tewkesbury, Mike Smart found a singing bird in 1984 and in the winter of 1984/85 John Sanders discovered a used nest at Sandhurst. There was possibly a final breeding pair there in 1985, but to all intents and purposes, by 1986 the story was over, just 100 years after it began. After that time, the few records received were of isolated, transient or passage birds discovered mainly by ringers.

The Marsh Warbler and The Law

In terms of legal protection, most people think of the 1954 Protection of Birds Act as being the first important legislation. In fact the 1954 Act was a relative latecomer; there had been a number of very much earlier pieces of legislation as far back as the Sea Birds Preservation Act of 1869 and the Wild Birds Protection Act of 1872.

One of the key pieces of legislation however was the Wild Birds Protection Acts 1880 to 1896. The reason for the importance of these Acts was that they brought into play specifically local legislation or "County" orders. For Gloucestershire these were the "Wild Birds Protection (Administrative County of Gloucester) Orders" from 1900 onwards, designed to allow protection to be specified at County level, but enacted under an order issued in Whitehall. County Orders were renewed every 5 years or so.

The 1900 Order specifically mentions Marsh Warbler in a list of 23 species along with Wood & Grasshopper Warbler, Osprey, Nightingale, Wryneck, Woodpeckers and others for which the "...taking or destroying of the eggs of the following species of Wild Birds is prohibited throughout the whole of the County of Gloucester". A new Order was made in 1905, followed by another on 17th October 1910, signed into being by no less an authority than Winston S. Churchill, then Home Secretary in the Liberal Government headed by Herbert Asquith. Another Order was to follow in 1915 and later, further protection was offered by the Protection of Birds Acts of 1925 and 1933.

The cumulative effect of these Acts and Orders was to make illegal all of the egg collecting activities carried on from 1900 onwards, until the 1954 Act that named the Marsh Warbler as a Schedule 1 species and introduced "special penalties", followed by the 1981 Wildlife and Countryside Act which also made illegal "wilful disturbance". In spite of the protection on offer there was no real barrier to the likes of Alfred Thomas carrying on his procuring activities and indeed his taxidermy. It is even more remarkable to think that Thomas was, in 1910, only one of four taxidermists operating in the city, all of whom were making a reasonable enough living to be able to afford to maintain shops at what would now be considered prime retail locations.

It is ironic that by the time real protection and public awareness were on offer, it was already too late for any benefit to accrue to the Marsh Warbler, moreover as an archetypal "little brown job" it would hardly have attracted the protective attention reserved for the big, the beautiful and the birds of prey.

Decline and Loss

The question that has been asked more than any other through my researches is that of the reasons for the loss of Marsh Warblers, both here in Gloucestershire and in Britain as a whole. The following comments are only a brief overview, but may shed some light; in all honesty I fear we will never know for sure, it is almost certainly too late to test any theory that might be proposed.

Habitat - Several authors and commentators have somewhat glibly suggested "habitat loss" but this is at least not wholly right. Christian expressed such an opinion in September 1967, emphasising that whilst it was a contributing factor, "...habitat loss did not altogether explain matters". This view is perhaps reinforced by the fact that habitat management was practised in Worcestershire, but did little to stem the loss there. There is little doubt that the loss of the withy beds was significant since they appeared to be a reservoir of higher productivity than the unmanaged environments of the rank vegetation but at least half of the nest records came from beyond the withies, albeit at a lower density. To all intents and purposes the general habitats available now are no different from those in France, Belgium and the Netherlands where Marsh Warblers continue to thrive.

Climate - Over the period of Marsh Warbler occupation of Britain the average temperatures have changed. There was a warming cycle that for example caused a cessation of the "frost fairs" held on the frozen Thames in the late 18th and early 19th centuries. The 1860-80 period was warmer, though still relatively cool in summer, and there is a correlation between the rise in numbers of Marsh Warblers as the environment warmed slowly to the long hot summers of the 1940s. The subsequent cooling to the 1980s before the current rapid global warming became evident is also concurrent with the decline of the Marsh Warbler. This is a very simplified picture of a complex issue and without detailed records for a real comparison there is no way of knowing if it is significant. On a Eurasian-wide scale the expansion of the Marsh Warbler's range and numbers particularly in the north, may be a reflection of a general warming of the continental weather patterns. Summer rainfall varies from year to year but overall there does not seem to have been so much change as to unduly influence the Marsh Warblers. From time to time a bad June occurs with higher than normal rainfall, sometimes accompanied by wind and it may have a local and periodic effect, particularly if unseasonal flooding occurs. Christian mentions in 1955, that he and Charlie Whitfield discovered a nest in the "Top Yard" that was suspended just inches above flood waters in Meadowsweet.

Food Supply - The Marsh Warbler is an insectivorous species; it is also a long distance migrant. These two factors may hold a clue to reduced productivity. To take different species as an example of the possible explanation, recently published information from continental studies shows that the Pied Flycatcher is suffering from insect food sources having shifted their life cycle forward by as much as sixteen days. The Flycatchers are, like the Marsh Warbler, long distance migrants and are therefore much less able to match this shift, as a result laying productivity has fallen and nestling mortality has risen; thereby reducing the population over time. In all probability, several later arriving species including Wood Warbler and Redstart are suffering the same fate. The Blackcap by contrast has reduced its migration pattern so

that many of them now manage to over-winter in Britain and Europe, which to some degree may be helping to raise the population levels since they are able to take advantage of being able to lay earlier, and increasing the number of second broods.

The "shallow" gene pool - In Britain, the Marsh Warbler was on the outer fringe of its range. It was relatively isolated from the European populations and with a total of perhaps no more than 250 pairs at best the gene pool was always going to be quite shallow. Kelsey & Green suggested that there was very little if any incoming stock to bolster the Worcestershire population. Other populations such as Walpole Bond's Sussex birds never produced more than 25-30 pairs and were only found over a relatively short period of circa 20 years, so that they were in effect, a transitory population.

An isolated and small population is always susceptible to implosion and collapse by means of the threats from disturbance, predation, habitat loss and climate change. Low viability and susceptibility to health risks due to reduced genetic diversity must make this more likely. Again, in contrast to the European birds, Kelsey and Green found that productivity was lower in Worcestershire than in Europe. Anecdotal evidence from several observers suggests that clutch size in Europe tends to be greater on average with many more occurrences of 6 eggs than in the Gloucestershire (and other British) records. There is even one record of 7 eggs in a nest near Ghent in Belgium in 1992. Of 342 recorded Gloucestershire clutches, only 10 were of 6 eggs.

Kelsey *et al.* make mention of the numbers of unmated males in Worcestershire ranging from 30-40% in the mid 1980s, when the decline elsewhere was almost complete. This suggests that whilst the males were site-faithful and returning to imprinted locations, the females were either not surviving, or perhaps simply not returning to their birth localities. In most species, the male holds a territory, the female approaches and decides whether or not she will stay. If then the prospects of encountered sites and unmated territory holding males along the route are attractive enough to stop the progress of migrating females short of the potential destination, there will naturally be a decline in the number of successfully breeding pairs at the greatest distance from the wintering grounds. It is perhaps possible that an expanding population in Europe was actually soaking up many of the available females on their way to British sites, before they made the Channel crossing.

Retreat South to North - One of the most interesting aspects of the Marsh Warblers decline and loss is that it was almost a mirror image of the situation in Europe, where from at least 1900 there was an inexorable expansion northwards. The British population from the 1930s disappeared progressively from south to north. The bulk of the breeding populations had gone from Sussex by the late 1930s, from Somerset by

the 1970s, Gloucestershire by the mid 1980s and finally from Worcestershire by the early 1990s. This situation appears to defy logic; a retreating population should be drawing back from the outer fringes of its range towards the core population strongholds, whereas in fact the opposite has been the case.

This also suggests that the strongest populations were in Gloucestershire, Worcestershire and to a lesser degree Somerset and the smaller groups in other counties were less stable, less well established and more vulnerable to any change in their viability and the environment. The current Marsh Warbler conservation initiative in Kent is tempered by the fact that observers there believe that their population is mainly dependent upon "overshoots" from the near continent and is therefore not truly endemic and stable.

Summary

There is no simple conclusion to be drawn from any of the above. The most likely explanation for the loss of the Marsh Warbler is a combination of factors, coupled with the fact that at a maximum of 250 pairs the whole British population was vulnerable, isolated and perhaps barely viable. Even at its height and in the most consistent locations, the density of breeding pairs here was significantly lower than in continental Europe. The fact that the species was able to expand northward there suggests a level of productivity much higher than that required to merely sustain the population. Even now, whilst there are some local fluctuations, as in Germany and Belgium, the population in Europe generally remains consistently high and productive with little or no change in most areas.

The Future

So far as Britain is concerned, the future for the Marsh Warbler is rather uncertain. The management project currently under way in Kent has had varied success from year to year and the opinion is that the small population there is not very stable or consistent.

The influx of Cetti's and to a lesser degree Savi's Warbler from Europe has followed a similar pattern to the Marsh Warbler of northward expansion from their formerly southern and central European ranges. Latterly the Zitting Cisticola, (formerly Fan Tailed Warbler) has also managed to reach the north western coast of France. On the evidence of these species and bearing in mind the Marsh Warblers headlong rush into the northern Baltic, there may be hope of a return, though it is difficult to see why re-colonization should not already have occurred if the habitat, food sources and climate are still suitable. The latest information is that many continental species, particularly insects, are invading southern Britain, some continental birds are matching this movement but many others such as Icterine Warbler for example, do not appear ever

to have been inclined to make the leap of faith and cross the channel. We may never see the Marsh Warbler in Gloucestershire again, but must always live in hope.

Acknowledgements
I acknowledge and thank the following for their help and assistance:

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LADYBIRD REPORT 2006

David Iliff

Last year's Ladybird Report described the arrival in the county of the Harlequin Ladybird (*Harmonia axyridis*), in the form of two larvae seen on the Pittville Park railings on 10th and 14th October 2005, just over a year after the first known appearance in Britain of this alien species amid alarming predictions that it would spread rapidly at the expense of our native species. There were no further county reports of the Harlequin until 4th September 2006 when another larva was seen at the same site. On 8th September Margaret McGlone provided the first county record for an adult Harlequin at Upper Cam; her photograph of the specimen appeared in the November 2006 issue of the Gloucestershire Wildlife Trust's magazine "Wildlife.

Throughout the remainder of the year large numbers of Harlequin Ladybirds were present on the Pittville Park railings, including larvae, pupae and many colour forms of the adult of this very variable species. Over 40 individuals were counted on 10th November. A larva was seen on 29th December, an exceptionally late date for any ladybird larvae.

Requests for records in "Wildlife" and in the Gloucestershire Echo elicited a good response from people finding suspect Harlequins and sending me images or actual specimens for verification. In addition, Peter Brown of the Harlequin Ladybird Survey has passed me records that have been sent directly to him. The following is a list of other 2006 records, which illustrates the rapidity with which the species has spread in the county:

Gloucester, 26th October (Megan Thornbury), 1 adult
Huntley, 29th/31st October, about a dozen adults indoors (Elizabeth Butler)
River Chelt, north Cheltenham, 10th November (Alison Richards),
9 adults, 2 larvae
Uley, 12th November (Steve Hull), 1 adult
Cirencester, 13th November (David Scott-Langley), 2 adults
Stonehouse, 13th November (Theresa Watt), 1 adult
Honeybourne Cycle Track, Cheltenham, 13th/14th November, adult and many pupae (Robert Homan)
Innsworth , 23rd November (Jacqueline Marshall), 1 adult
Leckhampton Court, 17th December (Pauline Clayton), 1 adult
Battledown, Cheltenham, 20th December (Julia Ball), 1 adult
Tidenham Chase, December (Jill Maher), 1 adult
Tredworth, 31st December (Richard Lawrence), 1 adult

Once the Harlequin began to proliferate at the Pittville Park site it quickly outnumbered the native species there. However other ladybirds continued to use the railings, including some of the scarcer species, such as the Eyed Ladybird (*Anatis ocellata*), the Larch Ladybird (*Aphidecta obliterata*) and the 18-Spot Ladybird (*Myrrha 18-guttata*), each of which was seen on one occasion during the autumn, while the Harlequin's relative, the Cream-streaked Ladybird (*Harmonia 4-punctata*) was often present in twos or threes. When the Harlequin larvae were first recorded on the railings in 2005, this alien became the 14th ladybird species to be recorded at the site. On 3rd June 2006, the number of species recorded on the railings increased to 15 with the discovery of a 16-Spot Ladybird (*Tytthaspis 16-punctata*) (see Plate 10).

On 21st April I saw and photographed a male 2-Spot Ladybird (*Adalia 2-punctata*) mating with a female 10-Spot Ladybird (*Adalia 10-punctata*) on the Pittville Park Railings (see Plate 11). Interspecific mating between these two species of the same genus has been achieved in captivity with production of offspring, but is apparently very rarely seen in the wild.

When David Atty published his Coleoptera of Gloucestershire in 1983 the Cream-streaked Ladybird was represented by only two records from a single site. The Orange Ladybird (*Halyzia 16-guttata*) and the Adonis Ladybird (*Hippodamia variegata*) were then totally unknown in Gloucestershire. The 2004 Ladybird Report described how the Orange Ladybird has been steadily increasing in numbers annually since the initial county record in 1991; this trend continued in 2006. The Adonis Ladybird is an even more recent newcomer to the county; it was recorded in the Bristol area (within VC34) in 2001, but only within present-day Gloucestershire boundaries since 2004. During 2006 I found one on bush vetch in my garden at Woodmancote on 28th May and two on fennel in the grounds of Gloucestershire Royal Hospital on 10th August, while John Widgery found examples in Stoke Orchard on 9th September and elsewhere in Woodmancote on 10th October.

Examples of the 19-Spot Ladybird (*Anisosticta 19-punctata*) were recorded by Ingrid and Colin Twissell at Dilke Lagoon on 20th May and at Rook Hill Covert Lake on 13th August and by John Harper at Woorgreens on 30th August, where he also found an Eyed Ladybird on the same date.

My thanks to Ian Carle and Holly York of GCER for importing the pre-2004 records from Excel into MapMate, and to everyone who has submitted records.

HOVERFLY REPORT 2006

David Iliff

In general 2006 proved to be a better year than any since 2002 for finding hoverflies with a number of significant records being added to the county list. The highlight was the discovery of two female *Chrysotoxum verralli* (see Plate 4), one of a number of *Chrysotoxum* species that superficially resemble smaller versions of the familiar *C. cautum*, at the Mythe by Martin Matthews on 25th August. These were the first county records for this species which has hitherto been recorded almost exclusively in the eastern half of England, and has been identified by the co-ordinators of the national Hoverfly Recording Scheme as the hoverfly species that has shown the greatest decline in numbers since the scheme began.

One of the scheme's co-ordinators, Roger Morris, visited Cheltenham on 20th April and found a specimen of *Cheilosia grossa* near the Waitrose supermarket, only the third VC33 record for this species that is probably under-recorded because of its early flight period. Another hoverfly that is under-recorded for the same reason is the spectacular bumblebee mimic, *Criorhina ranunculi*; John Phillips and I saw a male of the red-tailed form of this species at Silk Wood on 22nd April (see Plate 3). In his work on the Syrphidae of Great Britain (1901), G. H. Verrall described *Criorhina ranunculi* as "perhaps the grandest of all our British Syrphidae", though it must be pointed out that when he wrote those words the largest of all British Hoverflies, *Volucella zonaria*, was still unrecorded in Britain. Martin Matthews had *Volucella zonaria* at The Mythe on 25th August, while its somewhat smaller look-alike species *Volucella inanis* seems to be becoming well-established in the county, being found in Pittville Park, Cheltenham, on 24th July (see Plate 7), by Ingrid and Colin Twissell in their garden at Churchdown on 20th and 22nd August, in my garden at Woodmancote on 26th August and by John Fleming at Ebworth on 31st August.

John Phillips continued his recent history of finding rarities with the fourth county records of both *Callicera aurata* and *Eriozona syrphoides* (in the case of both these species he was also the source of two of the previous three records). *Callicera aurata*, is one of Britain's most exotic-looking hoverflies and was found on *Succisa* in his garden at Pope's Hill on 1st September (see Plate 5). John's specimen of *Eriozona syrphoides*, a bumblebee mimic that is a comparatively recent colonist of Britain and is associated with conifer plantations, was a female found in Flaxley Woods on 18th May, and was of great interest as it was an example of a white-tailed form (see Plate 2), the existence of which is not acknowledged in British hoverfly literature, which describes the species as a red-tailed bumblebee mimic, though there are photographs of it in European books and web-sites. John has written an article on this form for the Hoverfly Newsletter which is awaiting distribution to Dipterists Forum members. He

recorded another specimen of *Eriozona syrphoides* on 16th July at Speech House Walk.

Hoverflies of the genus *Neoascia* are among the smallest members of the family, and consequently can easily be overlooked. The species *N. podagrica*, which has darkened veins on the wings, is common in a variety of habitats, including gardens, while the clear-winged *N. tenur* is often recorded from wetland sites. Martin Matthews found a specimen of the much scarcer *Neoascia meticulosa* at Oxenhall Canal on 13th May, and John Harper took three more at the same site on 23rd May. The only previous record for sites within the Gloucestershire's present-day boundaries was from Dowdeswell in 1995.

Even smaller than *Neoascia* are the hoverflies of the genus *Paragus*, of which the forms occurring in Britain have unmarked black abdomens with bright yellow legs. Again, because they are inconspicuous, records of the genus are sparse. I saw a female *Paragus* hovering among runner bean flowers in my garden at Woodmancote on 2nd August. Females of the species *P. haemorrhous* and *P. tibialis* cannot easily be distinguished, though it is likely that this belonged to the former species, as *P. tibialis* is a rare heathland specialist confined to the south.

Determination of species within the genus *Cheilosia*, of which there are more than 30 in Britain, most of which have unmarked black abdomens, can seem a daunting prospect. However with experience many can be identified on sight using various characteristics such as size, shape, habitat, colour of legs and antennae, while the use of a hand lens, particularly to examine whether the eyes are bare or hairy, will facilitate the process in many cases. Some species have bright yellow third antennal segments and the females of a few species have a yellow tip to the scutellum. Females of *Cheilosia soror* (see Plate 6) are easily recognisable as the only *Cheilosia* with both these features. This nationally notable hoverfly is particularly frequent in Gloucestershire on white umbellifers in damp areas of woodland, but I was surprised to find several specimens in Pittville Park , Cheltenham, in July.

Other 2006 records of note included:

Anasimyia lineata	Oxenhall Canal	13th May	Martin Matthews
Anasimyia lineata	Oxenhall Canal	23rd May	John Harper
Anasimyia transfuga	Twyning	8th August	Martin Matthews
Brachypalpoides lentus	Flaxley Woods	18th May	John Phillips
Brachypalpoides lentus	Pope's Hill	18th May	John Phillips
Chalcosyrphus nemorum	Cannop	9th June	John Phillips
Chalcosyrphus nemorum	near Parkend	9th June	John Phillips

Eriozona erratica	Flaxley Woods	24th July	John Phillips
Sphaerophoria philanthus	The Park, Tidenham	15th July	Martin Matthews
Sphaerophoria philanthus	Woorgreens	28th August	Martin Matthews
Xanthogramma citrofasciatum	Cannop	12th May	John Phillips
Xanthogramma citrofasciatum	Flaxley Flushes	25th May	John Phillips
Xanthogramma citrofasciatum	Brockeridge Common	5th June	John Phillips
Xylota jakutorum	Soudley Ponds	8th June	John Phillips
Xylota jakutorum	Cannop	9th June	John Phillips
Xylota jakutorum	Staple Edge Wood	30th June	John Phillips

SPIDERS IN GLOUCESTERSHIRE 2006

David Haigh

Introduction

I was not able to attend 2 GIG Field Meetings in 2006 and must thank Colin Twissell for collecting spiders from Cutsdean and Hornsleasow Roughs and to John Harper (JH) for his lists from Beachley Point and The Park, Tidenham.

On a very wet morning GIG visited Lemington Lakes on August 13th, probably the first incursion into SP23, and enthusiastically led by Valerie Goring. A stormy morning greeted us at Ebworth in October and yet we were eventually to record in Saltridge Common Wood albeit under dripping foliage which made beating rather an al fresco shower.

I accompanied David Long on GWT surveys to Woodchester Park, Breakheart Quarry and Alney Island.

I was grateful to Jonathan Bills for his invitation to record spiders at RSPB, Nagshead on what was a beautiful day in July.

Finally a 'select' party attended the 'Bughunt' at Shorncote, CWP in June.

As far as I can see there were no New County Spider Records in 2006 and this may reflect that we are close to the county's total spider list. However it remains true that R.S. George's Check List 1957 still records 26 species awaiting confirmation.

As in previous years I shall focus on spiders of National Rarity or Scarcity. In addition, this report will include records of a number of Nationally Local species. Such spiders generally have specific habitat requirements, e.g. wetland, or are widespread but in very low numbers.

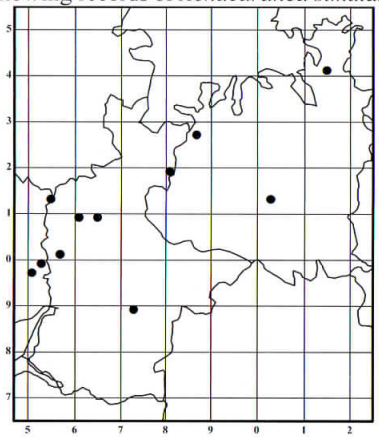
Red Data Book 3

Hyptiotes paradoxus. Two records this year from Collinpark Wood SO747277, May 13th, a new 10 Km square and RSPB Nagshead SO607087, July 28th. This latter is a refind.

Nationally Scarce, Notable B

Achaearanea simulans. RSPB Nagshead and Over Ponds, Alney Island SO819194, September 12th. This species is generally beaten from hedges. In the UK it is found mainly in the South-East with records from the Midlands and central-southern England. See Figure 8 for a county distribution map.

Figure 8. Vice-county map of Gloucestershire showing records of *Achaearanea simulans*



Theridiosoma gemmosum. An immature from Kennel Pond, Woodchester Park SO824012, April 4th. This is the 4th county record. It was first recorded by JH at Cannop Ponds, July 7th 2003.

Tetragnatha pinicola. Breakheart Quarry ST756967, June 7th and Beachley Point ST548904, July 15th, JH.

Zilla diodia. Oxenhall Canal SO713268, May 13th, beaten from a hedge on the roadside to the canal. This is the 7th record, all in VC34. First record, Popes Hill, 2002.

Nigma puella. This spider continues to be recorded each year from several sites and in this county could be said to be widespread. In 2006 it was recorded from the following locations:

Breakheart Quarry ST756967, June 7th and August 22nd; Beachley Point ST548904, July 15th, JH; North Nibley and Westridge Wood ST745957 and ST747949, September 10th, DH and JH; Alney Island, Over Ponds SO821195, September 12th.

See The Gloucestershire Naturalist No.17 2006 for distribution map up to 2005 and an account of this species in GNS News, Spring 2004.

Philodromus albidus. From the first county record at Sedbury Cliffs in 2000 *P. albidus* continues to be found in both VCs 33 and 34. A male was taken at Shorncote, CWP SU026960, June 3rd, Badgeworth Nature Reserve
in good numbers and both sexes, beaten from high hedges, SO911206, June 11th, June 14th, DH and JH and Coombe Hill Canal SO877273, June 14th, JH.

Philodromus collinus. JH recorded a male from Lower Yorkley, FOD SO632069, July 12th. This is the 5th record for the county and the 3rd for vc 34. First record, Edgehills Bog, FOD July 1993.

Local spiders

A number of Local species are confined to wetland. These spiders flourish in the humid understorey of sedge beds, reed swamps or rushy meadows. They are rarely visible in the open but enjoy hunting over wet mud beneath the canopy of wetland vegetation and observing them generally requires kneeling on a plastic sheet in a slowly sinking mire.

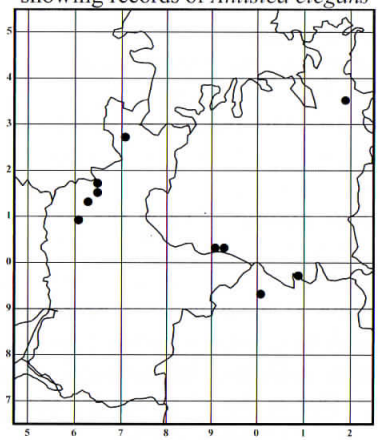
At Alney Island, between the East and West channels of the River Severn the sedge bed yielded *Tallusia experta*, *Bathyphantes approximatus* and *Lophomma punctatum*. JH at Coombe Hill Canal (meadows) recorded *Baryphyma pratense*, *Halorates distinctus* and *B. approximatus*.

Episinus angulatus is generally found singly and can occupy a variety of habitats but has a preference for marshes and damp grassland. There are less than 10 records for Gloucestershire. In 2006 it was recorded on 3 occasions, Horse Lawn, Kensley, FOD SO632122, June 14th, JH, Wigpool SO651196, November 6th, Colin Twissell and Alney Island SO825185, November 8th.

Another Local wetland spider is *Antistea elegans which* appears to be widespread in the county both in the FOD and the CWP but strangely absent from the Vale. In 2006 it was recorded from Oxenhall Canal, May 13th and Rook Hill Covert, Batsford SP 197347, August 13th. See Figure 9 for a county distribution map.

The genus *Pirata* within the family Lycosidae are wetland spiders. The Local *Pirata latitans* was recorded at Nagshead July 28th and at Wigpool SO652196, June 20th, JH, making 8 records for the county. Two further Local Lycosids recorded on GIG meetings were *Arctosa leopardus* at Oxenhall Canal, May 13th and *Pardosa purbeckensis* - the salt-marsh specialist 'wolf-spider' at Beachley Point, July 15th, JH.

Figure 9. Vice-county map of Gloucestershire showing records of *Antistea elegans*



John Harper has contributed the bulk of the county's records for *Enoplognatha latimana* and in 2006 he recorded the 4th, 5th and 6th records at Beachley Point in July. This species is very likely to be overlooked as it resembles the ubiquitous *E. ovata* and exhibits similar colour polymorphism. *E. latimana* is very much a coastal species in western and southern Britain but is found more frequently inland in eastern England.

Collinpark Wood on May 13th yielded the jumping spider *Ballus chalybeius*, a male found by Tony Taylor. This is the 4th site in VC34 and a second record for SO72, the others being SO71 and SO61. This spider has a very restricted distribution in VC34 being localised to the north of the FOD. It has a preference for young oak trees in open habitats.

Three further records of Local spiders were made by JH, two from Horse Lawn,June 14th, *Xysticus ulmi,* 3rd county record and the first for 12 years and *Rugathodes instabilis*, 2nd county record, the first being from the Cadora Wood Complex, FOD June 2000, Peter Kirby and lastly *Hahnia helveola* from Westridge Wood September 10th, 2nd county record and the first for 16 years.

Colin Twissell (CT) provided a female of the Local *Drassyllus pusillus* from Hornsleasow Roughs SP115325, June 24th and recorded fewer than five times and a first for SP13. This species has a preference for sandy heaths and downland and in Gloucestershire records are from Bromsberrow (sandy habitat) and Bisley Road Cemetery (limestone grassland with 'stones'). CT also provided a male *Achaearanea lunata,* Churchdown Hill SO876193, May 14th. This spider of generally deep

woodland was also observed at Rook Hill Covert, August 13th. Large scaffold webs suspended between coppiced hazel growths are evidence of this spider. Look for the dead leaf inside the web and this is the spider's retreat. I am grateful to Colin Twissell for his permission to use the photograph of *A. lunata* (see Plate 18).

Another record of distribution interest is CT's discovery of *Larinioides sclopetarius* at Downton Bridge, Stonehouse SO805048, September 19th. This site is on the Stroudwater Canal which formerly connected the River Severn with the River Thames and may well be the corridor between its two Gloucestershire populations, the Gloucester-Sharpness Canal and the Cotswold Water Park. A search in the vicinity of the Sapperton Tunnel (collapsed) could prove interesting. To complete the 'bridge', records are required from SO90 and ST99.

Finally 2 further records of Local spiders are *Steatoda grossa*, a 3rd record for VC33 beneath an inspection cover in Hatherley, Cheltenham, May 15th - see notes on this spider in TGN No. 15 and TGN No. 16 - and *Pelecopsis parallela* in a garden at Woodmancote SO972275, October, John Widgery. This Local Linyphiid has previously been recorded at Stinchcombe Hill, June 7th 2003 and Swifts Hill October 6th 2003 and by JH in the FOD in 2005 on 3 occasions. The preferred habitat is a sparsely vegetated site with bare ground and stones.

Once again I must acknowledge the records and sometimes actual spiders from colleagues. John Harper continues to contribute many records from GIG meetings and on other occasions when he visits the county. This year Colin Twissell, David Iliff and John Widgery sent in records and to Tony Taylor goes the 'prize' for the first record for 2006 in the shape of the 'jumping spider' *Pseudeuophrys lanigera* , Longney SO762127, February. This spider is a synanthropic species *with* an extending range. Look for it on walls and roofs of houses and buildings. My thanks also to David Long for providing the opportunity to visit sites not on the GIG programme and for organising permissions and site selection.

References

George, R.S., 1957. *"A brief list of the spiders (Araneae) recorded from Gloucestershire."* Proceedings C.N.F.C. XXXII Pt. II 1955 (1957).

Haigh, D.J.R. *"Spiders in Gloucestershire 2003, Spiders in Gloucestershire 2004 and Spiders in Gloucestershire 2005."* The Gloucestershire Naturalist Nos. 15, 16 and 17.

Haigh, D.J.R. "*A Nationally Scarce Nb spider, Nigma puella in Gloucestershire."* GNS News Spring 2004.

Harvey, P.R., Nellist, D.R. and Telfer, M.G., 2002. "*Provisional Atlas of British Spiders (Arachnida, Araneae)*." Biological Records Centre.

ORTHOPTERA REPORT 2006

John Widgery

The exceptionally good summer favoured the continued spread of several species and in these circumstances it was unfortunate that my recording activities were curtailed because of my house move. However, there were still several interesting observations and these are summarised, by species, below:

Roesel's Bush-cricket *Metrioptera roeselii.* This species, which has now reached the River Severn, was found in three new 10km squares. Tim Bailey found it at Crickley Hill (SO9216) on 13th July where, later, I detected at least three stridulating males. I got it near Stoke Orchard (SO9327) on 25th July and Jon Mellings then reported it from near Slimbridge (SO7204) on 28th July. For the reasons I have already explained above I was unable to carry out any intensive searches but I would guess it is already present but unrecorded in many other areas.

Long-winged Conehead *Conocephalus discolour.* Spreading more quickly than the former species which was reflected by an increase in reports from several sources, particularly David Haigh and Colin and Ingrid Twissell. I found it in four new 10km squares i.e. at Crickley Hill (SO9216) on 27th July, adjacent to the Severn Way near Berkeley (ST6397) on 26th September, at Snowshill (SP0933) on 4th October and, finally, with the help of my well-coached (hopefully!) grandchildren Hannah and Tom Andrews, who are young enough to be able to hear these insects unaided, at Arlingham (SO7011) on 7th October. Whilst there are still many gaps for the distribution of this species it is probably present throughout the County.

Lesser Marsh Grasshopper *Chorthippus albomarginatus.* This has already spread into most areas east of the River Severn. In August David Haigh found it at Leamington Lakes near Moreton-in-the-Marsh (SP2234) and this was the only new 10km square record for the season. It is possible, although not certain, that records will remain sparse west of the R. Severn due to unsuitable habitat but apart from that area there are only a comparatively small number of 10km squares for which it remains to be recorded.

Rufous Grasshopper *Gomphocerippus rufus.* Whilst there were no new 10km square records for this species, as it is one of the scarcest of the County's Grasshoppers for which new sites are unusual I thought its discovery at a new site worthy of mention despite the fact it is not far from a previous record at Haresfield Beacon. Once again, thanks must go to Hannah and Tom Andrews who found it at the adjacent Topograph Hill, Shortwood (SO8208) on 21st August.

In the 2005 report David Haigh mentioned the discovery of several crickets of southern European origin in a heated greenhouse at Evesham. Two of the species involved were identified as **Large Conehead**, *Rusploia nitidula* and **Southern**

Sickle-bearing Bush-cricket, *Phaneroptera nana* but a third was still awaiting identification. With the help of Judith Marshall of the Natural History Museum, London this other species was eventually identified as *Rhacocleis neglecta neglecta* (no English name) a species which is endemic to Italy although there are subspecies in eastern Europe and North Africa. It is the first time it has been recorded in the UK. Along with the others, two females of this species were kept in captivity for a few weeks after being found and they actually laid eggs which, so far as I am aware, did not hatch. I have no doubt there are many accidental arrivals of invertebrates occurring via the horticultural trade especially nowadays when so much is imported from southern Europe, particularly Italy. Whilst this occurrence was outside of the County, its close vicinity makes it of some interest to Gloucestershire invertebrate recorders particularly in view of the potential for any escapees to get here but also to draw attention to the probability of this sort of event happening elsewhere in the UK including Gloucestershire.

I thought it relevant to mention the importance of recording early and late dates for species in this time of climate change. Except for the Groundhoppers, none of the British Orthoptera live more than a few months between Spring and Autumn. The emergence from eggs, which have been laid the previous autumn, usually occurs in April or May and they then go though five or six stages before reaching maturity in the summer. Whilst there are variations between species, the timing of their appearances and length of survival is, to an extent, influenced by weather conditions and this makes the Orthoptera an ideal group to monitor for the effects of climate change. Two particularly late records I had this year were for **Field Grasshopper**, *Chorthippus brunneus* on 28th October and **Speckled Bush-cricket**, *Leptophyes punctatissima* on 31st October both at Woodmancote (SO9727). It is also worth mentioning a very early date for **Dark Bush-cricket**, *Pholidoptera griseoaptera* that I had a few years ago on 8th April 1999 at Bishops Cleeve (SO9628). Earliest and latest records of any Orthoptera would be welcome.

Finally, a word of thanks must go to David Haigh for looking after Orthoptera recording so efficiently for 2005 and much of 2006.

THE CENTIPEDES (MYRIAPODA: CHILOPODA) OF GLOUCESTERSHIRE

Keith Alexander & David Scott-Langley

Centipedes are a very familiar group of arthropods to naturalists and non-naturalists alike, although few in either category know much about them. Basically they are long and thin, with up to 80 or so pairs of legs and generally gingery in colour. They are active predators of other invertebrates and possess poison-claws with which to subdue their victims. Although British centipedes cannot normally harm people by bites or poison, non-native species are increasingly reaching this country and – with global climate change – may become established locally. It is only a matter of time before we do have species that we should worry about!

A key restriction on their activity is the lack of a waterproof skin, which limits their activities to relatively damp situations and conditions where they are at low risk of desiccation. Most tend to be ground-living animals and are usually encountered by sorting through accumulations of leaf litter or decaying wood, or else found sheltering beneath stones, logs, etc – they are mainly active after dark and seek out refugia during the hours of daylight. Some do ascend vegetation and may be found by sweep-netting or up in trees or on walls. They can be found all year round, making recording work a full-time job, although full grown adults are more seasonal – and often necessary for certain identification. Also they tend to be most readily found in spring and autumn, as summer drought and winter cold restrict their activities to more subterranean situations.

Centipedes could never really be called a popular group with field naturalists but, as with so many "minor" invertebrate groups, they have attracted sufficient top quality people for Britain's fauna to be relatively well-known. The key identification work (Eason, 1964) is now fairly out-of-date but A D Barber (2003) has produced a draft AIDGAP key through an active study group - the British Myriapod & Isopod Group (the Myriapoda comprises the Chilopoda (centipedes), the Diplopoda (millipedes), and two obscure groups of small animals, the Symphyla and the Pauropoda). The Group produces its own newsletter and bulletin, and operates the Centipede Recording Scheme in affiliation with the Biological Records Centre, Monks Wood. A provisional atlas for the British fauna has been published (Barber & Keay, 1988).

The Gloucestershire fauna is very much dominated by nationally common and widespread species that are favoured by ground disturbance and by buildings, many of which have almost certainly been introduced to Britain from more southern countries through trade. Nonetheless, there is a reasonable variety of long-established native species that prefer less disturbed habitats such as semi-natural woodlands,

marshes, limestone grassland, etc – these are all very localised as a result and these are the species of interest to nature conservationists:

- Wooded habitats: *Strigamia crassipes*, *S. acuminata*, *Lithobius curtipes* (ancient woodlands) & *L. macilentus;*
- Open habitats – grasslands, marshes and heaths: *L. calcaratus* (although also reported from woods on the Cotswolds);
- Semi-natural vegetation, whether wooded or open: *Lamyctes emarginatus* (so far only from grasslands in the county) & *Lithobius borealis* (so far only from woodlands in the county);
- Seashore: *S. maritima* (seashores and brackish waters such as the tidal banks of the Severn).

A feature of the county is also the presence of southwestern species. *Geophilus osquidatum* is a scarce species nationally and restricted to the southwest. *Lithobius variegatus* is much more abundant and widespread but of considerable biogeographic interest as a SW European species which is best known in Great Britain and Ireland, occurring elsewhere in the world only in the northwestern corner of the Iberian Peninsula. It tends to be confined to the more semi-natural habitats, away from areas with more intense human disturbance.

SOURCES OF RECORDS

Gloucestershire has been exceedingly favoured in being the residence of the only author of a systematic comprehensive account of the British fauna, Dr E H Eason (1964). Eason was not just active at a British level but also made a major contribution to World myriapod studies. He was mainly active recording in the county in the 1950s and 1960s, and published his first local list in 1952 in which he refers to the only two previously published records of centipedes from the county: *Lithobius variegatus* (Gibson-Carmichael, 1882) and *Geophilus flavus* (Newport, 1844). Eason was mainly active as a field recorder locally in a small area bounded by Bourton-on-the-Hill, Temple Guiting and Stanway, and all between 750 and 950ft altitude. He produced a county checklist in the 1980s. Sadly he died on 22 December 1999.

The county is also fortunate in having hosted one of the annual joint field meetings of the British Isopod Study Group and British Myriapod Group in April 1992. This was based at Littledean and produced an excellent crop of records for the Forest area. The county records have also benefited from visits by other national recording organisations dealing with invertebrates as many invertebrate recorders tend to be interested in a wide range of invertebrate groups - the Spider Recording Scheme meeting in 1990, also based at Littledean, is a case in point. The large majority of the records for the county have been made by the two authors, Keith Alexander as county

recorder from 1982-1999, and David Scott-Langley as county recorder from 2000-present.
Of the 41 species listed in Barber & Keay (1988) 29 (70%) have so far been found in the county. But the county is still very much under-recorded.

AREA OF STUDY
The following accounts include records for the whole of Watsonian Vice-Counties of East and West Gloucestershire (VCs 33 and 34 respectively), including those areas currently within the administrative boundaries of the unitary authorities of South Gloucestershire and Bristol City Council.

NOMENCLATURE
The species names used in this account and the order of presentation are as used in Barber (2003).

STATUS
The status of Britain's centipedes has not so far been reviewed by the Joint Nature Conservation Committee. Thus none are officially regarded as Nationally Scarce, i.e. confined in Great Britain to fewer than 100 of the 10km squares of the Ordnance Survey national grid.

Nine species have been identified in the following catalogue as rare natives in the county: *Schendyla dentata, Geophilus electricus, Geophilus insculptus*, *Lithobius macilentus, Lithobius borealis*, *Lithobius pilicornis, L. calcaratus*, *L. curtipes,* and *Lamyctes emarginatus. L. macilentus* and *L. curtipes* are also likely candidates for Nationally Scarce status when JNCC carry out the long overdue review.

ABBREVIATIONS USED FOR MAIN RECORDERS

ADB	A.D. Barber
ANK	A.N. Keay
BAS	British Arachnological Society field meeting.
BC	B. Cave
BMG	British Myriapod Group - miscellaneous records from the 1992 field meeting.
DSL	D. Scott-Langley
EHE	E.H. Eason
EP	E. Philp
JH	J. Harper
KNAA	K.N.A. Alexander
MU	Manchester University
PL	P. Lee

PR	P. Richards
RW	R. Willder

CATALOGUE OF GLOUCESTERSHIRE CHILOPODA

Class **CHILOPODA**
Order **GEOPHILOMORPHA**

Family HIMANTARIIDAE
Stigmatogaster subterraneus (Shaw) **(=*Haplophilus subterraneus*** (Shaw)) - A common and widespread species in southern Britain; markedly synanthropic, occurring particularly in situations disturbed by the activities of people, such as gardens and old quarries, but also in naturally disturbed habitats such as sea shore and open rocky situations. It proved to be a very common species in woodland and other sites in the Forest in 1992.

SO50	Priors Mesne, 2002, DSL.
SO51	Coleford, 1955, EHE; Lady Park Wood, 1984, KNAA; Marions Inclosure, 1992, BMG; Wimberry Slade, 2004, DSL, JH.
SO60	Nagshead Plantation, Lydney Harbour, Gatcombe, How Beech Quarry, New Fancy, 1992, BMG; Nagshead, 2004, DSL, JH.
SO61	Cannop, Court Farm, Hobbs Quarry, Littledean House Hotel, Longhope Church, Lower Ruspidge, Shakemantle Quarries, Speech House & Upper Lydbrook, 1992, BMG. Longhope, 1996, BC; Arlingham, 2000, DSL; Wigpool Scowles, 2005, DSL.
SO70	Fretherne, 2000, DSL.
SO71	Westbury Court Garden, 1992, BMG; Little London, 2001, DSL; Minsterworth, 2002, DSL.
SO72	Newent, 2001, DSL.
SO73	Ketford Bank, 1992, KNAA.
SO80	Woodchester Park, 1967, MU; Bisley Road Cemetery, Stroud, 2001, DSL; Rodborough Common, 2003, DSL; Pen Wood, 2005, DSL.
SO81	Quedgeley, 2002, AT; Saltridge Common Wood, 2006, DSL.
SO90	Oakley Wood, under bark, 1986, KNAA; Siccaridge Wood, 1986, A J Rundle; Coates (2 sites), 1999/2000, DSL; Three Groves Wood, 2000, DSL; Daglingworth Crossroads, 2000, DSL; Siccaridge Wood, 2000, DSL; Sapperton, 2001, DSL; Strawberry Banks NR, 2003, DSL.
SO91	Dowdeswell Wood, 2000, DSL; Lineover Wood, 2000, DSL; Witcombe Wood, 2000, DSL; Caudle Green, 2000, DSL.
SO92	Cheltenham (2 sites), 1999, 2001, DSL.
SP00	Cirencester (8 sites), 1999, 2001, 2004, 2005, DSL; Baunton, 2000, DSL; Ampney Crucis, 2001, DSL; North Cerney, 2004, DSL; Winson, 2004, DSL.

SP01 Compton Abdale, 1999, DSL; Chedworth, 1999, DSL; Rendcomb Park, 1999, DSL; Calcot, 2002, DSL.
SP02 Temple Guiting, 1999, DSL; Kineton, 2004, DSL.
SP03 Stanton, 2002, DSL.
SP10 Fairford, 2000, DSL; Quenington, 2000, DSL; Bryworth Railway NR, 2000, DSL; Bibury, 2001, DSL; Eastleach Martin, 2003, DSL.
SP12 Guitinghill Plantation, under stones, 1951, EHE (1952). Condicote, 1999, 2000, DSL; Salmonsbury Meadows, 2000, DSL; Naunton, 2000, DSL; Guiting Power, 2000, 2002, DSL.
SP13 Bourton Far Hill, under stones & in soil, throughout summer, EHE (1952); 1977, EHE; Blockley, 1958; Bourton Hill, 1951, 1955 & 1959; Hinchwick, 1951, EHE; Chipping Camden, 2005, DSL.
SP20 Eastleach Turville, 1999, DSL; Southrop, 1999, DSL; Fyfield, 2001, DSL; Lechlade Manor, 2001, DSL; Edward Richardson NR, 2000, DSL.
SP22 Lower Oddington, 2000, DSL.
ST59 Poors Allotment, 2000, DSL; Sedbury Cliffs, 2000, DSL; Black Morgans Wood, 2002, DSL.
ST67 Winterbourne Down, 1984, ADB & ANK.
ST78 Kilcott, 1965, EHE.
ST79 Westridge Wood, 2006, DSL.
ST88 Didmarton, 2000, DSL.
ST89 Nailsworth, 1964, EHE; Bagpath, 1999, DSL; Tetbury (2 sites), 1999, 2001, DSL; Hookshouse, 2000, DSL; Westonbirt Arboretum, 2004, DSL.
ST99 Jackaments Bottom Farm, 1999, 2000, DSL.
SU09 Downs Farm, South Cerney, 1999, DSL; Siddington, 2000, DSL; Ewen Wharf, 2000, DSL; Down Ampney, 2002, DSL; CWP Lake 31/32, 2005, DSL; CWP Lake 84, 2005, DSL; CWP Lake 6, 2005, DSL.
SU19 Marston Hill, Fairford, 1999, DSL; Whelford Pools NR, 2000, DSL.
SU29 Lechlade, 2001, 2006, DSL.

Family SCHENDYLIDAE

Schendyla dentata Brolemann & Ribaut (=***Brachyschendyla dentata*** (Brolemann & Ribaut))– **County Rarity.** A small, soil-dwelling species with very few records across the country. It occurs at low densities and is thought to be parthenogenetic as only females have been found.
SP12 Condicote, 2000, DSL.

Schendyla nemorensis (CL Koch) - A very widespread species and most abundant in southern Britain. Favours coastal situations, but also widely in arable, scrub and waste places such as old quarries and roadside verges.
SO60 Lydney Harbour & Gatcombe, 1992, PL; Nagshead Plantation, 2004, DSL.

SO61 Cannop, Court Farm, Shakemantle Quarries & Upper Lydbrook, 1992, BMG.
SO70 Hock Ditch, Fretherne, 1999, DSL.
SO71 Westbury Court Garden, 1992, ADB; Epney, 1999, DSL; Gamage Court, 2002, DSL.
SO72 Newent Woods, 1992, BMG.
SO73 Bromsberrow, 2000, RW.
SO82 Sandhurst NR, 2003, DSL.
SO83 Tewkesbury Ham, 2000, DSL.
SO90 Daneway Banks, 1986, A J Rundle; Three Groves Wood, 2000, DSL; Siccaridge Wood, 2000, DSL; Coates, 2000, DSL; Overley Wood, 2001; Strawberry Banks NR, 2003, DSL.
SO92 Cheltenham (2 sites), 1999, 2001, DSL.
SP00 Cirencester, 2000, DSL; Baunton, 2000, DSL; Calmsden, 2001, DSL; Bagendon, 2001, DSL.
SP01 Rendcomb Park, 1999, DSL.
SP03 Stanway Ash Plantation, 1951, EHE (1952).
SP10 Bryworth Railway NR, 2000, DSL; Bibury, 2000, DSL.
SP12 Kineton Hill, 1957, EHE; Condicote, 2000, DSL; Longborough, 2000, DSL; Salmonsbury Meadows, 2000, DSL.
SP13 Shernals, Campden Hill, 1951; Bourton Woods, 1951, EHE (1952); Blockley, 1958, EHE.
SP20 Edward Richardson NR, 2000, DSL.
SP22 Lower Oddington, 2002, DSL.
ST88 Midger Wood, 2003, DSL.
ST89 Boxwell Wood, 1982, KNAA.
ST99 Jackaments Bottom Farm, 1999, DSL.
SU09 Siddington, 2000, DSL.
SU19 Whelford Pools NR, 2000, DSL.

Family GEOPHILIDAE

Henia vesuviana (Newport) - A Mediterranean species, confined in Britain to southern coastal districts where it is mostly associated with disturbed soils such as on arable land. Only recently established in the county.
SO60 Lydney Harbour, 1992, PR.

Strigamia crassipes (CL Koch) - A widespread species although not common anywhere. A rural animal, favouring marshy habitats and woodlands.
SO51 Wimberry Slade, 2004, DSL, JH.
SO60 New Fancy, 1992, BMG; Nagshead, 2004, DSL, JH.
SO61 Plump Hill, 1990, EP; Cannop, 1992, BMG.

SO71 Framilode, 1999, DSL.
SO80 Woodchester Park, 1967, MU; Pen Wood, 2005, DSL.
SO81 Saltridge Common Wood, 2006, DSL.
SO83 Forthampton Oaks, 2000, DSL.
SO90 Oakley Wood, 2002, DSL; Fox Wood, 2004, DSL.
SO91 Lineover Wood, 2000, DSL; Witcombe Wood, 2000, DSL.
SP00 Baunton, 2000, DSL.
SP03 Stanway Ash Plantation, 1951, EHE (1952).
SP12 Guitinghill Plantation, 1951, EHE (1952).
SP13 Bourton Woods, 1951, EHE; The Warren, Hinchwick, 1951, EHE; Blockley, 1958, EHE; Bourton Hill, 1959, EHE.
ST58 Aust, 1984, ADB & ANK.
ST78 Lower Woods, 2003, JH.

Strigamia acuminata (Leach) - Widely distributed but local. A rural species, favouring marshy habitats and woodlands – perhaps mainly in ancient semi-natural woodlands.
SO51 Wimberry Slade, 2004, DSL.
SO61 Sutton Bottom, 1990, EP.
SO62 Betty Daws Wood NR, 2001, DSL.
SO71 Highnam Woods, 1998, JH.
SO73 Bromsberrow, 2000, RW.
SO90 Overley Wood, 2001; Oakley Wood, 2002, DSL.
SO91 Lineover Wood, 2000, DSL.
SO92 Dowdeswell Wood, 1999, DSL; Scobbs Grove, 1999, 2001, DSL.
SP01 Withington Woods, 1960, EHE.
SP10 Bryworth Railway NR, 2000, DSL.
SP12 Stow Bridge Coppice, 1999, DSL.
SP13 Bourton Woods, 1951, EHE (1952).
ST59 Black Morgans Wood, 2002, DSL.

Strigamia maritima (Leach) - A common seashore species which extends long distances up estuaries; its discovery in the county in 1992 was long overdue.
SO60 Lydney Harbour & Purton, 1992, BMG; Lydney, 2005, CT.
SO70 Kingston Pill, Slimbridge, 1992, KNAA.

Geophilus carpophagus agg. – Eason (1979) was of the opinion that this species was in fact two and following work by Arthur *et al.* (2001) a cryptic species was discovered and named *G. easoni*. The following note and records refer to the aggregate species prior to 2001. Widespread nationally, mostly in rural situations,

such as acid heath, marsh and sand dunes, but also in and on buildings. Fairly local in the county.
SO60 Lydney Harbour, Nagshead Plantation & New Fancy, 1992 BMG.
SO61 Speech House, 1992, BMG.
SO71 Highnam Woods, 1998, JH.
SO72 Newent Woods, 1992, BMG.
SO73 Collin Park Wood & Ketford Bank, 1992, KNAA.
SO83 Forthampton Oaks, 2000, DSL.
SO91 Witcombe Wood, 2000, DSL.
SP00 Cirencester, 1982, KNAA; Cirencester (2 sites), 1999, DSL.
SP01 Withington Wood, 1960, EHE.
SP02 Kineton, thorn copse, 1957, EHE.
SP13 Kildanes Scrubs, 1951; Bourton Woods, 1951, Eason (1952); Bourton Far Hill, 1960, 1972, EHE; Bourton Hill, 1951, 1955, EHE.
ST59 Poors Allotment, 2000, DSL.
ST99 Jackaments Bottom Farm, 2000, DSL.
SU29 Lechlade, 1999, DSL.

Geophilus carpophagus Leach – Often found in or around buildings, this is also an arboreal species that is frequently found around the coast. The following records are for 2001 onwards following the species split.
SO71 Little London, 2001, DSL; Westbury-on-Severn, 2002, DSL.
SO80 Standish, 2004, J Bailey.
SO82 Ashleworth, 2001, DSL.
SP00 Cirencester, 2005, DSL.

Geophilus easoni Arthur *et al.* – Widespread, and common on acid heathland, among other habitats. The following post-2001 records are all from the Forest of Dean.
SO60 Nagshead, 2004, DSL & JH.
SO72 Collin Park Wood, 2006, DSL.
ST59 The Park, 2002, DSL.

Geophilus electricus (L.) – **County Rarity.** This is a very widespread, but uncommon species that is often recorded from synanthropic sites.
SP12 Condicote, 2000, DSL.

Geophilus osquidatum Brolemann - A south-western speciality on the edge of its British range in the county; mainly in rocky or stony places.
SO60 Lydney Harbour, 1992, BMG.
SO61 Littledean House & Speech House, 1992, BMG.
SO72 Collin Park Wood, 2006, DSL.

SO80 Woodchester Park, 1967, MU; Bisley Road Cemetery, Stroud, 2001, DSL; Pen Wood, 2005, DSL.
SO90 Sapperton, 2001, DSL; Fox Wood, 2004, DSL.
SO91 Cowley Manor, 1961, EHE; Cowley, 1962, P Griffiths, Cowley, 1963, P McMahn, both per EHE; Witcombe Wood, 2000, DSL; Caudle Green, 2000, DSL.
SP00 Ampney Crucis (2 sites), 2001, 2002, DSL; Cirencester, 2001, DSL.
SP02 Hawling, 2001, DSL.
SP10 Bibury, 2001, DSL.
SP20 Lechlade Manor, 2001, DSL.
SP22 Lower Oddington, 2002, DSL.
ST58 Aust, 1984, ADB & ANK.
ST79 Tyley Combe, 2001, JH.
ST89 Nailsworth, 1964, EHE; Tetbury, 2001, DSL.
SU09 Siddington, 2000, DSL.
SU29 Lechlade, 2001, DSL.

Geophilus insculptus Attems – Widely distributed and common in the east of Britain, but more localised in the west. Mainly a rural species, although often associated with buildings and gardens.
SO80 Woodchester Park, 1967, MU.
SO90 Three Groves Wood, 2000, DSL; Overley Wood, 2001, DSL; Coates, 2001, DSL.
SO91 Dowdeswell Wood, 2000, DSL; Witcombe Wood, 2000, DSL; Caudle Green, 2000, DSL.
SP00 Cirencester, 2001, DSL.
SP03 Winds Hill Plantation, Cutsdean, 1958, EHE.
SP10 Bibury, 2000, DSL.
SP11 Turkdean, beech wood on steep bank, 1958, EHE.
SP12 Naunton, 2000, DSL; Condicote, 2000, DSL; Longborough, 2000, 2001, DSL.
SP13 Bourton Far Hill, EHE (1952).
ST89 Hookshouse, 2000, DSL; Tetbury, 2001, DSL.
SU29 Lechlade, 2001, 2006, DSL.

Geophilus flavus (De Geer) (=***Necrophloeophagus flavus*** (De Geer)) - Widespread and generally common.
SO60 Gatcombe saltmarsh & Lydney Coast, 1992, BMG.
SO61 Colemans Wood, 1992, BMG.
SO62 Betty Daws Wood, 2001, DSL.
SO70 Fretherne, 2000, DSL.

SO72 Glasshouse, FOD, 2001, DSL.
SO80 Woodchester Park, 1967, MU.
SO81 Gloucester, Newport (1844).
SO83 Tewkesbury Ham, 2000, DSL; Forthampton Oaks, 2001, DSL.
SO90 Coates, 2000, DSL; Oakley Wood, 2002, DSL; Strawberry Banks NR, 2003, DSL; Fox Wood, 2004, DSL.
SO91 Lineover Wood, 2000, DSL.
SO92 Dowdeswell Wood, 1999, DSL; Cheltenham (2 sites), 1999, DSL; Queenswood Farm, 2002, DSL.
SO93 Dixton Wood, 1998, PFW.
SP00 Cirencester (4 sites), 1999, 2000, DSL; Ampney Crucis, 2000, DSL.
SP01 Compton Abdale, 1999, DSL; Chedworth, 1999, DSL; Chedworth Woods, 2002, DSL.
SP02 Roel Hill, 1957, EHE; Kineton, 1957, EHE; Temple Guiting, 1999, DSL.
SP03 Stanway Ash Plantation, 1951, Eason (1952); Stanton, 2002, DSL; Toddington Orchards, 2002, DSL.
SP12 Guitinghill Plantation, 1951, EHE (1952); Kineton Hill, 1957, EHE; Condicote, 1999, 2000, DSL; Salmonsbury Meadows, 2000, DSL; Debdene Banks, 2000, DSL; Naunton, 2000, DSL; Guiting Power, 2002, DSL.
SP13 Kildanes Scrubs, 1951, EHE; Bourton Far Hill, 1951, EHE; Hinchwick, 1951, EHE (1952). Bourton Hill, 1951, 1955, 1959, EHE; Batsford Park, 1957, EHE; Bourton Far Hill, 1977, EHE.
SP23 Chipping Campden, 1999, 2001, DSL.
ST58 Aust, 1984, ADB & ANK.
ST59 Black Morgan's Wood, 2002, DSL.
ST78 Lower Woods, 2003, JH.
ST89 Hookshouse, 1999, 2000, DSL.
SU09 Siddington, 1999, 2000, DSL; Ewen Wharf, 2000, DSL.
SU19 Whelford Pools NR, 2000, DSL.

Geophilus truncorum (Bergsoe & Meinert) (=***Brachygeophilus truncorum*** (Bergsoe & Meinert)) - Common. Most often found beneath bark on deadwood in woodlands; also relatively common on moorlands.
SO50 Priors Mesne, 2002, DSL.
SO51 Coleford, 1955, EHE; Marions Inclosure, Staunton & Lady Park Wood, 1992, BMG.
SO60 How Beech Quarry, Lydney, Nagshead Plantation, New Fancy & Gatcombe, 1992, BMG; Nagshead Plantation, 2004, DSL & JH.
SO61 Cannop, Shakemantle Quarries, Speech House & Upper Lydbrook Quarry, 1992, BMG; Hope Wood, 1996, BC.
SO62 Betty Daws Wood, 2001, DSL.

SO71 Elton, 1992, BMG; Westbury-on-Severn, 2002, DSL.
SO72 Newent, 2 sites, 2001, DSL; Collin Park Wood, 2006, DSL.
SO80 Woodchester Park, 1967, MU; Bisley Road Cemetery, Stroud, 2001, DSL.
SO81 Buckholt Wood, 2003, DSL.
SO90 Coates, 1999, DSL; Overley Wood, 2001, DSL; Oakley Wood, 2002, DSL; Fox Wood, 2004, DSL.
SO91 Dowdeswell Wood, 1999, 2000, DSL; Witcombe Wood, 2000, DSL; Caudle Green, 2000, DSL.
SO92 Dowdeswell Wood, 1999, DSL; Scobbs Grove, 1999, DSL; Queenswood Farm, 2002, DSL.
SP00 North Cerney, 1960, EHE; Cirencester (2 sites), 1999, DSL; Calmsden, 2001, DSL.
SP01 Withington Wood, 1960, EHE; Rendcomb Park, 1999, DSL.
SP02 Roel Hill & Sudeley Hill, 1957, EHE; Guiting Woods, 1957, EHE.
SP12 Salmonsbury Meadows, 2000, DSL.
SP13 Kildanes Scrubs, 1952, EHE; Bourton Far Hill, 1951, EHE (1952). Bourton Hill, 1952, EHE; Blockley, 1958, EHE.
SP22 Lower Oddington, 2001, DSL.
SP23 Dorn, 1958, EHE.
ST59 Poors Allotment, 2000, DSL; Black Morgan's Wood, 2002, DSL; The Park, FOD, 2002, DSL.
ST67 Winterbourne Down, 1984, ADB & ANK.
ST78 Kilcott, 1965, EHE; Midger Wood, 2003, DSL.
ST79 Damery, 1984, ADB & ANK.
ST89 Tetbury, 1982, KNAA; Hookshouse, 2000, DSL.
SU09 Siddington, 2000, DSL; Ewen Wharf, 2000, DSL.

Order **SCOLOPENDROMORPHA**

Family CRYPTOPSIDAE

Cryptops anomalans Newport - A large and impressive animal, reaching 5cm in length, and capable of penetrating human skin with its poison claws. It lives in a variety of more-or-less urban habitats, and is scattered across southern England.
SO61 Littledean House, 1992, R Jones.
SO92 Cheltenham, 1999, DSL.
SP23 Chipping Campden, 1999, DSL.

Cryptops hortensis Leach - Common, mainly synanthropic species.
SO60 Nagshead Plantation, 1992, PL; 2004, DSL.

SO61 Court Farm, Littledean House, Lower Ruspidge, Shakemantle Quarries & Upper Lydbrook, 1992, BMG. Longhope, 1996, BC; Cinderford Linear Park, 2000, DSL.
SO62 Betty Daws Wood, 2001, DSL.
SO70 Awre Churchyard, 1992, PL.
SO71 Westbury Court Gardens, under stone, 1992, PL; Epney, 1999, DSL; Little London, 2001, DSL.
SO72 Newent, 2001, DSL.
SO80 Bisley Road Cemetery, Stroud, 2001, DSL; Rodborough Common, 2003, DSL.
SO81 Brockworth Park, 2000, PFW.
SO83 Tewkesbury Ham, 2000, DSL; Forthampton Oaks, 2000, DSL.
SO90 Coates, 1999, DSL; Overley Wood, 2001, DSL; Sapperton, 2001, DSL; Fox Wood, 2004, DSL.
SO91 Dowdeswell Wood, 2000, DSL.
SO92 Cheltenham (2 sites), 1999, DSL.
SP00 Barnsley Park, 1985, KNAA; Cirencester (7 sites), 1999, 2000, 2001, 2004, DSL; Ampney Crucis (2 sites), 2000, 2001, 2002, DSL; Baunton, 2000, DSL.
SP01 Compton Abdale, 1999; Chedworth, 1999; Rendcomb Park, 1999; Calcot, 2002, DSL.
SP03 Stanton, 2002, DSL.
SP10 Arlington, Bibury, 1999, DSL; Quenington, 2000, DSL; Quarry Hill, Bibury, 2000, DSL; Eastleach, 2003, DSL.
SP11 Turkdean, 1958, EHE; 2003, DSL.
SP13 Bourton Far Hill, 1951, EHE (1952).
SP20 Eastleach Turville, 1999, DSL; Edward Richardson NR, 2000, DSL; Lechlade Manor, 2001, DSL.
SP22 Lower Oddington, 2000, DSL.
ST58 Aust, 1984, ADB & ANK.
ST59 Black Morgan's Wood, 2002, DSL.
ST89 Tetbury, 2001, DSL.
ST99 Jackaments Bottom, 1999, 2000, DSL; Kemble, 2000, DSL.
SU09 South Cerney, 1999, DSL; Siddington, 2000, DSL; Ewen Wharf, 2000, DSL; CWP Lakes 31/32, 2005, 2006, DSL.
SU29 Lechlade, 2000, 2006, DSL.

Cryptops parisi Brolemann - Widespread in urban-type situations across southern Britain.
SO61 Littledean House, 1992, ADB.
SO71 Westbury Court Garden, 1992, R Jones, ADB & PR.

SO80 Bisley Road Cemetery, Stroud, 2001, DSL.
SO81 Quedgeley, 2002, AT.
SO92 Cheltenham, 1999, DSL.
SP00 Cirencester (2 sites), 2000, 2004, DSL.
SP01 Calcot, 2002, DSL.
SP12 Condicote, 2000, DSL; Naunton, 2000, DSL.
SU09 Ewen Wharf, 2000, DSL.
SU29 Lechlade, 2001, 2006, DSL.

Order **LITHOBIOMORPHA**

Family LITHOBIIDAE

Lithobius variegatus Leach - A speciality of long-established semi-natural habitats and with a western distribution. Common and widespread in the county.

SO50 Wyeseal/Bigsweir Wood, 1982, 1999; Bearse Farm, 1992; Highbury Wood, 1989; Church Grove, Newlands, 1999, KNAA; Lancaut, 1990, H Read; Folly Wood, 2000, J Doe; Priors Mesne, 2002, DSL.
SO51 Coleford, 1955, EHE; Swan Pool & 5611 timberyard pools, 1981, KNAA; Lady Park Wood, 1984, KNAA; 1992 BMG; Marions Inclosure, Staunton, 1992, BMG. Dingle Wood, 1994, KNAA; Wimberry Slade, 2004, DSL, JH.
SO60 Gatcombe, How Beech Quarry, Nagshead Plantation, New Fancy, 1992, BMG; The Tufts, 1992, KNAA; Lydney Park, 1995, KNAA; Nagshead, 1996, BC; Oaklands Park, 1996, BC; Nagshead, 2004, DSL, JH.
SO61 Nagshead SSSI, Cannop Ponds, Worcester Walk, 1982, KNAA; Plump Hill & Sutton Bottom, 1990, EP; Cannop, Colemans Wood, Hobbs Quarry, Lower Ruspidge, Speech House, Welshbury & Upper Lydbrook, 1992, BMG; Flaxley, 1996, BC; Wigpool, 2000, DSL; Wigpool Scowles, 2005, DSL.
SO62 Betty Daws Wood, 1991, KNAA, 2001, DSL; May Hill, 1985, D Clements, 1998, KNAA.
SO70 Stanley Wood, 1985, KNAA.
SO71 Elton, 1992, BMG; Highnam Woods, 1992, KNAA; 1998, JH; Bulley Woods, 1997, KNAA.
SO72 Collin Park Wood, 1984, 1992, KNAA; Rudgeley Woods, 1991, J Fleming *et al.*; Newent Woods, 1992, BMG; Bulley Woods, 1997, KNAA; Highnam Woods, 1998, JH; Collin Park Wood, 2002 (in batbox), 2006, DSL; Newent, 2001, DSL; Glasshouse, FOD, 2001, DSL.
SO80 Haresfield Beacon, 1984, KNAA; Blackstable Wood, 1985, KNAA; Woodchester Park, 1967, MU, 1994, KNAA; Rabbit Warren Wood, Selsley,

1996, 1998, KNAA; Snows Farm, 1997, KNAA; Frith Wood, 2003, KNAA; Pen Wood, 2005, DSL; Bisley Road Cemetery, Stroud, 2001, DSL.
SO81 Cranham, 1961, EHE; Workman's Wood, 1985, KNAA; Popes Wood, 1991, KNAA; Chosen Hill, 1992, KNAA; Robins Wood Hill, 1997, KNAA; Churchdown Hill, 2001, CT; Buckholt Wood NNR, 2003, DSL; Saltridge Wood, 1985, KNAA; Saltridge Common Wood, 2006, DSL.
SO90 Frampton Common, 1980, KNAA; Dorvel Wood, 1980/82, KNAA; Sapperton Canal, 1983, KNAA; Oakley Wood & Hailey Wood, 1983, 1993, KNAA; Fox Wood, Famish Hill, 1984, KNAA & 2004, DSL; Daneway Banks, 1986, A J Rundle; Francombe Wood, 1998, KNAA; Siccaridge Wood, 1986, A J Rundle, 1998, 2003, KNAA & 2000, DSL; Strawberry Banks, 2003, DSL; Oakley Wood, 2002, DSL; Overley Wood, 2001, 2002, DSL; Three Groves Wood, 2000, DSL, 2003, KNAA; Sapperton, 2001, DSL.
SO91 Lyde Bank, 1985, KNAA; Hilcot Wood, 1987, KNAA; Dowdeswell Wood, 1999, 2000, DSL; Cranham Wood, 2003, DSL; Lineover Wood, 2000, DSL; Witcombe Wood, 2000, DSL.
SO92 Dowdeswell Wood, 1994, KNAA; 1999, 2001, DSL; Queenswood Farm, 1997, KNAA & 2002, DSL; Scobbs Grove, 2001, DSL.
SP00 Cirencester, 2000, DSL; Calmsden, 2001, DSL.
SP01 Withington Woods, 1960, EHE; 1985, KNAA; Chedworth Roman Villa, 1985, D Clements *et al.*; Cleevely Wood, 1985, KNAA; Clifferdine Wood, 1988, KNAA; Rendcomb Park, 1999, KNAA & DSL; Chedworth Woods, 2002, DSL.
SP02 Pinnock, 1950, EHE (1952); Kineton, Roel Hill & Sudeley Hill, 1957, EHE; Guiting Wood, 1957, EHE; 1984, KNAA; Puckham Woods, 1985, KNAA; Temple Guiting, 1999, DSL.
SP03 Stanway Ash Plantation, 1951, EHE (1952); Cutsdean, 1958, EHE; Littleworth Wood, 1985, KNAA; Hailes Abbey, 1985, KNAA; Thrift Wood, 1997, KNAA.
SP12 Kineton Hill, 1957, EHE; Eyford Warren, 1989, 1992, KNAA; Condicote, 1999, DSL; Longborough, 1999, DSL; Debdene Banks, 2000, DSL.
SP13 Bourton Hill, 1948-59, EHE; Kildanes Scrubs, 1950/52, EHE; Bourton Far Hill, 1951, EHE; Shernals, Campden Hill, 1951, EHE; Bourton Woods, 1951, EHE (1952); Batsford Park, 1957, EHE; Blockley, 1958, EHE; Bourton Woods, 1988, KNAA; Campden Wood, 1995, KNAA; Hinchwick, 2000, DSL.
ST57 Clifton, Gibson-Carmichael (1882). Coombe Dingle, 1998, KNAA.
ST59 Lancaut Reserve, 1989, 1990; Stroat, 1989; Ban-y-Gor-Wood, 1997, KNAA; Black Morgan's Wood, 2002, DSL; The Park, FOD, 2002, DSL; Poors Allotment, 2000, DSL; Sedbury Cliffs, 2000, DSL.

ST67 Winterbourne Down, 1984, ADB & ANK.
ST69 Parkend, 1984, ADB & ANK; Whitcliffe Deer Park, 1984, KNAA.
ST78 Kilcott, 1965, EHE; Horton Court, 1982, KNAA; Midger Wood, 1982, 1991, KNAA, & 2003, DSL; Lower Woods, 1997, KNAA, & 1998, JB, & 2003, DSL.
ST79 Dursley Wood, 1983, KNAA; Coopers Wood, 1984, KNAA; Damery, 1984, ADB & ANK; Coombe Hill, Nibley & Wotton Hill Quarries, 1984, ADB & ANK; Nibley Knoll, 1997, JB; Alderley Wood, 1998, KNAA; Coombe Hill, 2003, DSL; Stinchcombe Hill, 2003, DSL; Breakheart Quarry, 2003, DSL; Westridge Wood, 2006, DSL.
ST88 Silk Wood, 1980, 1984, KNAA; Saddlewood Roughs, 2003, DSL.
ST89 Nailsworth, 1964, EHE; Kingscote Wood, 1980, 1982, KNAA; Box Wood, 1982 & 1998, KNAA; Tetbury, 1982, KNAA; Bowldown Wood, 1990, KNAA; Bagpath, 1999, DSL; Tetbury, 1999, DSL; Hookshouse, 1999, DSL; Westonbirt Arboretum, 2004, DSL.
ST99 Jackaments Bottom Farm, 1999, DSL.

Lithobius forficatus (Linnaeus) - A widespread species, occurring in both urban and rural situations. Eason (1952) points out that "this species is so common in the highest parts of the North Cotswolds, as it is not common elsewhere at such altitude".
SO50 Priors Mesne, 2002, DSL; Newland, 2000, CT.
SO51 Coleford, 1955, EHE; Lady Park Wood, 1984, KNAA; Mailscot Wood, 1991, J Doe & J Elworthy; Wimberry Slade, 2004, DSL, JH.
SO60 Lydney Coast & New Fancy, 1992, BMG.
SO61 Cannop, Colemans Wood, Littledean House, Shakemantle Quarries, Speech House & Hobbs Quarry, 1992, BMG; Longhope, 1996, BC; Bessy's Wood, Newnham-on-Severn, 2002, DSL; Cinderford Linear Park, 2000, DSL.
SO70 Awre, 1992, PL; Hock Ditch, Fretherne, 1999, DSL; Fretherne, 2000, DSL.
SO71 Elton & Westbury Court Garden, 1992, BMG; Highnam Woods, 1998, JH; Epney, 1999, DSL; The Placketts & Denny Hill, 2002, DSL; Gamage Court, 2002, DSL; Little London, 2001, DSL; Quedgeley, 2001, AT.
SO72 Darley Wood, 1991, J Fleming *et al.*; Collin Park Wood, 2002, DSL; Newent, 2001, DSL; Oxenhall Canal, 2006, DSL.
SO73 Ketford Bank & Bromsberrow Sandpit, 1992, KNAA; Bromsberrow, 2004, RW.
SO80 Woodchester Park, 1967, MU.
SO81 Brockworth Park, 2000, PFW; Saltridge Common Wood, 2006, DSL.
SO82 Coombe Hill Canal, 2000, DSL.
SO83 Tewkesbury Ham, 2000, DSL; Forthampton Oaks, 2000, DSL.
SO90 Siccaridge Wood, A J Rundle, 1986; Daneway Banks, A J Rundle, 1986; Coates (2 sites), 1999, 2000, DSL; Three Groves Wood, 2000, DSL;

Sapperton, 2001, DSL; Overley Wood, 2002, DSL; Oakley Wood, 2002, DSL; Fox Wood, 2004, DSL.
SO91 Cowley, 1963, EHE; Cockleford, 1999, DSL; Dowdeswell Wood, 1999, 2000, DSL; Lineover Wood, 2000, DSL; Witcombe Wood, 2000 DSL.
SO92 Cheltenham (2 sites), 1999, DSL; Dowdeswell Wood, 1999, DSL; Queenswood Farm, 2002, DSL.
SO93 Oxenton, 1957, EHE.
SP00 Cirencester (5 sites), 1999/2000, DSL; Baunton, 2000, DSL; Barnsley, 2001, DSL; Cirencester, 2004, DSL.
SP01 Withington Wood, 1960, EHE; Hedgley Bottom, 1999, DSL; Rendcomb Park, 1999, DSL; Calcot, 2002, DSL; Chedworth Woods, 2002, DSL; Kilkenny, 2002, DSL.
SP02 Pinnock, manure heap, 1950, EHE (1952); Kineton, Roel Hill & Sudeley Hill, 1957, EHE; Temple Guiting, 1999, DSL.
SP03 Stanway Ash Plantation, 1951, EHE (1952); Stanton, 2002, DSL; Toddington Orchards, 2002, DSL.
SP10 Bryworth Railway NR, 2000, DSL; Bibury, 2000, DSL.
SP11 Turkdean, 1958, EHE; Sherborne Park, 1985, KNAA.
SP12 Guiting Hill Plantation, under stones, 1951, EHE (1952); Kineton Hill, 1957, EHE; Stow Bridge Coppice, 1999, DSL; Condicote, 1999, 2000, DSL; Guiting Power, 2000, DSL; Salmonsbury Meadows NR, 2000, DSL; Naunton, 2000, DSL.
SP13 Kildanes Scrubs,1951, EHE; Bourton Far Hill, 1951, EHE (1952); Hinchwick, Shernals, 1951, EHE; Batsford Park, 1957, EHE; Blockley, 1958, EHE; Bourton Hill, 1959, 1960, EHE; Hornsleasow Roughs, 2006, DSL.
SP20 Eastleach Turville, 1999, DSL; Edward Richardson NR, 2000, DSL; Fyfield, 2004, DSL.
SP23 Chipping Campden, 1999, DSL.
ST59 Poors Allotment, 2000, DSL; Sedbury Cliffs, 2000, DSL.
ST67 Winterbourne Down, 1984, ADB & ANK.
ST78 Kilcott, 1965, EHE; Midger Wood, 2003, DSL; Lower Woods, 2003, DSL.
ST79 Coombe Hill Quarry, 1984, ADB & ANK; Millend Wood, 1990, J Fleming *et al.*.
ST88 Didmarton, 2000, DSL.
ST89 Nailsworth, 1964, EHE; Hookshouse, 1999, DSL.
ST99 Jackaments Bottom, 1999, DSL.
SU09 Downs Farm, South Cerney, 1999, DSL; Siddington, 2000, DSL; CWP Lakes 31/32, 2005, DSL.
SU19 Marston Hill, Fairford, 1999, DSL.
SU29 Lechlade, 2001, DSL.

Lithobius melanops Newport - A disturbed ground species, of seashores and sand dunes, as well as urban sites inland. Fairly widespread in the county.

SO50 Priors Mesne, 2002, DSL.
SO61 Littledean House, 1992, BMG.
SO70 Fretherne, 2000, DSL.
SO71 Westbury-on-Severn, 2002, DSL; Gamage Court, 2001, DSL; Minsterworth, 2001, DSL.
SO72 Newent, 2001, DSL.
SO80 Woodchester Park, 1967, MU.
SO82 Sandhurst NR, 2003, DSL.
SO90 Sapperton, 2001, DSL.
SO91 Dowdeswell Wood, 1999, DSL; Colesbourne, 2006, DSL.
SP00 Cirencester (3 sites), 1999, 2000, DSL; Calmsden, 2001, DSL; Barnsley, 2001, DSL.
SP02 Kineton, 1957, EHE.
SP03 Stanway Ash Plantation, 1951, EHE (1952); Stanton, 2002, DSL.
SP10 Bryworth Railway NR, 2000, DSL; Ready Token, 2001, DSL; Eastleach Turville, 2003, DSL.
SP12 Guiting Hill Plantation, under stones, 1951, EHE (1952); Kineton Hill, 1957, EHE; Condicote, 1999, 2000, DSL; Naunton, 2000, DSL.
SP13 Bourton Hill, 1951-66, 1978, EHE; Hinchwick, 1951, EHE; Batsford Park, 1957, EHE; Kildanes Scrubs, 1951, EHE; Bourton Far Hill, 1951, EHE (1952).
SP20 Edward Richardson NR, 2000, DSL; Lechlade Manor, 2001, DSL.
ST78 Midger Wood, 2003, DSL.
ST79 Coombe Hill Quarry & Nibley Quarry, 1984, ADB & ANK.
ST99 Jackaments Bottom Farm, 2000, DSL.
SU09 CWP Lakes 31/32, 2005, DSL; CWP Lake 6, 2005, DSL.
SU19 Marston Hill, Fairford, 1999, DSL.

Lithobius macilentus L Koch – **County Rarity**. A very localised species of rural areas, most often found in woodland.

SO80 Woodchester Park, 1967, MU.
SP11 Turkdean, adult female & immature in leaf litter in a beech wood on steep bank, 1958, EHE.

Lithobius borealis Meinert – **County Rarity**. A widespread species of rural areas nationally. Very uncommon in the county and only reported so far from four sites.

SO61 Wigpool, 2000, DSL.
SO90 Oakley Wood, 1987, KNAA.
SP13 Bourton Hill, (as *L. lapidicola*), 1957, EHE (1960).

SU09 CWP Lake 6, 2005, DSL.

Lithobius pilicornis Newport – **County Rarity.** Widespread in southwest Devon and Cornwall but away from that area it is restricted to a few urban sites. The largest British lithobiid at up to 40mm long, it often replaces *Lithobius forficatus* as the large *Lithobius* species. (see Plate 17.)

SP00 Cirencester (2 adjacent sites in the old part of the town) (appears to replace *L. forficatus*), 1999, 2000, 2001, 2002, 2006, DSL.

Lithobius calcaratus CL Koch – **County Rarity**. A species of open, well-drained habitats such as acid heaths, rocky seacliffs and calcareous grasslands. Very few local records.

SO72 Newent Woods, 1992, BMG.
SO80 Woodchester Park, 1967, MU; Swifts Hill, 1997, KNAA.
SP00 Cirencester, 2000, DSL.
SP03 Stanway Ash Plantation, 1951, EHE (1952).
ST79 Stinchcombe Hill, 2003, DSL.

Lithobius crassipes L Koch - Widespread in rural situations nationally, especially semi-natural grasslands and heaths.

SO61 Speech House, 1992, BMG.
SO72 Collin Park Wood, 2006, DSL.
SO82 Coombe Hill Canal, 2000, DSL.
SO90 Fox Wood, 2004, DSL.
SO91 Lineover Wood, 2000, DSL.
SP01 Chedworth Woods, 2002, DSL.
SP02 Kineton, 1957, EHE.
SP11 Turkdean, 1958, EHE.
SP12 Guitinghill Plantation, under stones, 1951, EHE (1952); Kineton Hill, 1957, EHE; Salmonsbury Meadows NR, 2000, DSL.
SP13 Bourton Far Hill, 1951, EHE; Hinchwick, 1951, EHE; Bourton Hill, 1952, EHE (1952) & 1951-55, EHE; Blockley, 1958, EHE.
SP23 Dorn, 1958, EHE.
ST78 Lower Woods, 2003, JH.

Lithobius curtipes CL Koch – **County Rarity**. Predominantly a woodland species, perhaps mainly ancient semi-natural woods.

SO61 Wigpool Scowles, 2005, DSL.
SO82 Apperley, 1999, JH.
SO91 Hilcot Wood, 1999, JH.
SP01 Withington Wood, 1960, EHE.

SP13 Kildanes Scrubs, Bourton Hill, 1952, EHE.

Lithobius microps Meinert - Frequent in gardens and urban sites, although with a very wide range of habitat preferences.

SO51 Coleford, 1955, EHE; Marions Inclosure, 1992, BMG; Wimberry Slade, 2004, DSL, JH.
SO60 How Beech Quarry, Lydney Harbour, Nagshead Plantation, New Fancy & Gatcombe, 1992, PL; Oaklands Park, 1996, BC; Nagshead, 2004, DSL, JH.
SO61 Sutton Bottom, 1990, EP; Cannop, Court Farm, Hobbs Quarry, Littledean House, Lower Ruspidge, Shakemantle Quarries & Upper Lydbrook, 1992, BMG; Flaxley, 1996, BC; Arlingham, 2000, DSL; Bessy's Wood, Newnham-on-Severn, 2002, DSL; Wigpool Scowles, 2005, DSL.
SO62 Betty Daws Wood, 2001, DSL.
SO70 Awre, 1992, BMG; Fretherne, 2000, DSL.
SO71 Little London, 2001, DSL; Quedgeley, 2001, AT; Gamage Court, 2002, DSL; Westbury-on-Severn, 2002, DSL.
SO72 Newent Woods, 1992, BMG; Newent, 2001, DSL; Glasshouse, FOD, 2001, DSL.
SO73 Ketford Bank, 1992, KNAA; Bromsberrow, 2000, 2004, RW.
SO80 Woodchester Park, 1967, MU; Bisley Road Cemetery, Stroud, 2001, DSL; Pen Wood, 2005, DSL.
SO81 Cranham, 1961, EHE; Cranham Common, 2003, DSL; Saltridge Common Wood, 2006, DSL.
SO83 Tewkesbury Ham, 2000, DSL.
SO90 Siccaridge Wood, 1986, A J Rundle, 2000, DSL; Daneway Banks, 1986, A J Rundle; Coates, 1999, DSL; Overley Wood, 2001, DSL; Oakley Wood, 2001, DSL; Sapperton, 2001, DSL; Strawberry Banks, 2003, DSL; Fox Wood, 2004, DSL.
SO91 Cowley, 1963, EHE; Dowdeswell Wood, 1999/2000, DSL; Lineover Wood, 2000, DSL; Witcombe Wood, 2000, DSL; Cranham Wood, 2003, DSL.
SO92 Dowdeswell Wood, 1999, DSL.
SP00 Cirencester (3 sites), 1999, DSL; Ampney Crucis, 2000, DSL; Baunton, 2000, DSL; Calmsden, 2001, DSL; Perrotts Brook, 2001, DSL; Barnsley, 2001, DSL.
SP01 Rendcomb Park, 1999, DSL; Chedworth, 1999, DSL; Calcot, 2002, DSL.
SP02 Sudeley Hill, 1957, EHE.
SP03 Cutsdean, 1958, EHE.
SP10 Bryworth Railway NR, 2000, DSL; Fairford, 2000, DSL; Bibury, 2000, DSL; Ready Token, 2001, DSL.

SP12 Condicote, 1999, 2000, DSL; Salmonsbury Meadows, 2000, DSL; Debdene Banks, 2000, DSL; Guiting Power, 2000, DSL; Naunton, 2000, DSL; Longborough, 2001, DSL.
SP13 Bourton Far Hill, under stones, 1951, EHE; Shernals, Campden Hill, 1951, EHE; Bourton Woods, 1951, EHE; Hinchwick, 1951, EHE (1952); Bourton Hill, 1951, 1952, 1955, EHE; Batsford Park, 1957, EHE; Blockley, 1958, EHE.
SP20 Eastleach Turville, 1999, DSL.
SP22 Lower Oddington, 2002, DSL.
ST58 Aust, 1984, ADB & ANK.
ST59 Poors Allotment, 2000, DSL; Black Morgan's Wood, 2002, DSL.
ST69 Parkend, 1984, ADB & ANK.
ST78 Midger Wood, 2003, DSL; Lower Woods, 2003, DSL.
ST79 Coombe Hill Quarry & Wotton Hill Quarries, 1984, ADB & ANK; Westridge Wood, 1995, D Bolton; Coombe Hill, 2003, DSL; Nibley Knoll, 2006, DSL.
ST88 Saddlewood Roughs, 2000, DSL; Didmarton, 2000, DSL.
ST89 Nailsworth, 1964, EHE.
ST99 Jackaments Bottom Farm, 2000, DSL.
SU09 Down Ampney, 2001, 2002, DSL; Siddington, 2000, DSL; CWP Lakes 31/32, 2005, DSL; CWP Lake 6, 2005, DSL.
SU19 Marston Hill, Fairford, 1999, DSL; Whelford Pools NR, 2000, DSL.

Family HENICOPIDAE

Lamyctes emarginatus (Newport) (=***Lamyctes fulvicornis*** Meinert) – **County Rarity**. Mainly a rural species of open habitats.

SO82 Coombe Hill Canal NR, 2000, 2005, DSL; Ashleworth Ham NR, 2002, KNAA.
SO90 Overley Wood, 2002, DSL.
SP13 Bourton Hill, in field, 1960, EHE.
SP20 Edward Richardson NR, 2000, DSL.
ST59 The Park, 2002, DSL.
ST99 Jackaments Bottom, 1999, DSL.

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REFERENCES

Arthur, W, Foddai, D, Kettle, C, Lewis, J G E, Luczynski, M & Minelli, A, 2001. *Analysis of segment number and enzyme variation in a centipede reveals a cryptic species,* Geophilus easoni *sp. nov., and raises questions about speciation.* Biol. J. Linn. Soc. (2001), 74: 489-499.

Barber, A D, 2003. *A Guide to the identification of British centipedes (Test version).* AIDGAP, Field Studies Council.

Barber, A D, & Keay, A N, 1988. *Provisional Atlas of the Centipedes of the British Isles*. British Myriapod Group. Biological Records Centre, Monks Wood, Huntingdon.

Eason, E H, 1952. *Centipedes (Chilopoda).* Proc. Cotteswold Naturalists' Field Club **XXXI, pt I**: 61-62.

Eason, E H, 1957. *Centipedes and Millipedes*. Proc. Cotteswold Naturalists' Field Club **XXXII**: 49-50.

Eason, E H, 1960. *Centipedes (Chilopoda).* Proc. Cotteswold Naturalists' Field Club **XXXIII**: 79.

Eason, E H, 1964. *Centipedes of the British Isles*. Warne.

Gibson-Carmichael, 1882. Proc. Roy. Phys. Soc. Edinb. **1882**: 240.

Newport, G, 1844. *Monograph of the class Myriapoda, order Chilopoda; with observations on the general arrangement of the Articulata.* Trans. Linn. Soc. Lond. **19**: 265 ff.

THE SPRINGTAILS OF GLOUCESTERSHIRE: Part 2

(A preliminary account of the county's Collembola)

David Scott-Langley

The Springtails (Insecta: Collembola) are a large group of very small wingless insects; the largest British species is only 6mm long. For this reason, few people have taken an interest in the group, especially as the British species have only been described in numerous publications over the years, describing one or two at a time. Several out-of-county collectors (Hopkin, Gough, etc) have recorded species from Gloucestershire but Brian Cave was the first native to make a serious study of Gloucestershire springtails in the 1990s and had produced a list of 46 species before he moved to France. He also tentatively identified a number of other species but these have not been included as he felt there could be errors in their identification.

The year 2000 saw a milestone in British springtail history with the publication of a test version of Steve Hopkin's AIDGAP Key to the Springtails of Britain and Ireland. This is the first time that it has been possible to identify all our Collembolan fauna from one book. Previously, a combination of German and North American books and numerous journal articles was required.

Hopkin lists 416 species but considers that some of these will eventually disappear as junior synonyms following further taxonomic studies, and that there are probably in the region of 250 species in this country.

Steve Hopkin sadly died in a car accident in 2006 but his website is still available at the time of writing. It is to be hoped that his final version of the AIDGAP will be published in due course.

NOMENCLATURE

The species names used in this account and the order of presentation are as used in Hopkin (SPH2005).

ABBREVIATIONS USED FOR MAIN RECORDERS

BC Brian Cave
GIG Gloucestershire Invertebrate Group field trip
GNS Gloucestershire Naturalists Society field trip
HG Harold Gough
SPH Steve Hopkin
(SPH2005) Steve Hopkin website (if original recorder not named)
All other records are those of the author.

LIST OF FAMILIES COVERED IN PART 2

Isotomidae
Tomoceridae
Neelidae
Bourletiellidae
Dicyrtomidae
Sminthuridae

LIST OF GENERA COVERED IN PART 2

Anurophorus
Folsomia
Isotomiella
Isotoma
Isotomurus
Vertagopus
Tomocerus
Megalothorax
Neelus
Heterosminthurus
Dicyrtoma
Dicyrtomina
Allacma

CATALOGUE OF GLOUCESTERSHIRE COLLEMBOLA - Part 2

Family ISOTOMIDAE

238. ***Anurophorus laricis*** Nicolet. Widespread and common species, often found under bark. 1.4mm; black.

SO60 Doward SSSI, beaten from gorse, 14.2.97, BC.

268. ***Folsomia manolachei*** Bagnall. Common and widespread, usually found in soil or leaf litter. 1.5mm; white.

SO61 Highnam Wood, under oak woodland, 22.i.96, BC.

SO71 Old Rectory, Longhope, in sycamore/hazel/laurel litter, 3.iii.98, BC.

275. ***Folsomia quadrioculata*** (Tullberg). Widespread and common, especially in soil and leaf litter. 1.2mm; greyish brown.

SO60 Doward SSSI, in old wood ants nest, 14.ii.96, BC; Nagshead, 21.iv.96, BC.

SO61 Speech House, in holly litter, 14.ii & 21.ix.96, BC; Lea Bailey, 4.viii.96, BC; Coleman's Wood, in oak litter, 8.iii.96, BC; Hope Wood, 8.i.97, BC; Sculchurch Wood, in leaf litter, 22.ii & 13.xii.97, BC.

SO62 Dancing Green, in sweet chestnut/oak/fir litter, no date, BC; May Hill, in bracken/grass litter, 8.v.96, BC.

SO80 Bisley Road Cemetery, Stroud (GIG), 20.v.01
SO82 Ashleworth, in orchard, (GIG), 7.x.01
SO90 Old Rectory, Sapperton, 18.v.01
SP00 Stand Plantation, Calmsden, in litter (Tullgren extraction), 17.ii.01

278. ***Folsomia spinosa*** Kseneman. Recorded from a few widely scattered sites but has probably been overlooked in the past. 1.2mm; white.

ST78 Wetmoor SSSI, in leaf litter, 31.v.97, BC.

ST99 Jackaments Bottom Farm, under log in grass, 3.v.01

304. ***Isotomiella minor*** (Schäffer). One of the commonest springtails, found in leaf litter and soil. 1.1mm; white.

SO61 Wilderness, in lime/hazel/oak leaf litter, 6.iii.96, BC; Hope Wood, in Douglas Fir litter, no date, BC.

Subfamily Isotominae

The species in this subfamily, particularly in the genera *Isotoma* and *Isotomurus* show wide colour variation and the number of species involved has yet to be determined. Consequently some records have been omitted from this account until the situation improves. Even some of those listed below may be moved or removed at a later date.

285. ***Isotoma antennalis*** (Bagnall). A scarce species often associated with acid sites. 3.0mm; bluish black.

SO61 Longhope, in broad-leaved leaf litter, 4.xii.96, BC.

296. ***Isotoma notabilis*** Schäffer. Extremely common and widespread with numerous records from leaflitter, soil and caves. 1.0mm; grayish brown.

SO60 Doward SSSI, in old wood ants nest, 14.ii.96, BC.

SO61 Stenders, in birch leaf litter, 26.ii.96, BC; Longhope, in garden compost, 17.ix.96 & 3.iii.98, BC; Hope Wood, in spruce litter, 28.ii.97, BC; Wilkes Wood, 27.xii.96, BC; Sculchurch Wood, in hazel/ash/lime leaf litter, 13.xii.97, BC;

SP00 Stand Plantation, Calmsden, in litter (Tullgren extraction), 17.ii.01

301. ***Isotoma tigrina*** (Nicolet). Widespread and common species. 2.1mm; greyish brown.

SO61 Longhope, in holly/hawthorn litter, 10.viii, 14 & 18.ix, 10 & 22.xii.96, 23.i.97, 23.i &12.ii.98, BC (as *I. olivacea*).

302. ***Isotoma violacea*** Tullberg. Often found in hilly and boggy areas. 2.4mm; violet or bluish black with white feet and furca.

SO61 Longhope, 7.i.95 & 28.i.97, BC.

SO71 Ley Park Wood, in litter, 1.i.96, BC.

303. ***Isotoma viridis*** Bourlet. Widespread and very common. 4.0 mm; greenish or reddish brown.

SO50 Wimberry Slade, in oak leaf litter, 7.vii.96, BC.
SO60 Nagshead, in oak leaf litter, 26.viii.95 & 25.iii.96, BC.

SO61 Welshbury Wood, in lime/oak leaf litter, 16.vii.94, BC; Speech House, in holly leaf litter, 14.ii.96, BC; Coplars Old Lane, in oak/maple leaf litter, 23.xii.96, BC; Flaxley, in ash litter, 15.viii.96, BC; Longhope, in garden, 30.x & xi.97, 21.i & 3.iii.98, BC.

SO62 May Hill, in bracken/grass litter, 8.v.96 & 14.ii.97, BC.

SO91 Caudle Green, 12.iv.01

315. ***Isotomurus maculatus*** (Schäffer). Not widely recorded. 2.5 mm; greyish-green or brown with scattered patches of dark pigment.

SP00 Overhill Road, Cirencester, 31.iii.01
SP12 Fox Farm, Condicote, 4.iv.01
ST88 Didmarton, 27.iv.01

316. ***Isotomurus palustris*** (Müller). One of the commonest species of springtail. 2.5 mm; greyish-green or brown with scattered patches of dark pigment with a longitudinal dorsal stripe.

SO61 Edge End, in oak litter, 11.xii.94, BC; Hobbs Quarry, in mixed litter, 6.ii.96, BC; Hope Wood, in ash litter, 14.i.96 & 23.i.97 BC; Longhope, in garden compost, 18 & 19.ix.96, BC; Longhope, 15 & 17.xii.96, 28.i & xi.97, 21.i & 12.ii.98, BC; Flaxley Wood, on *Laccaria laccata*, 26.x.96, BC.

SO71 Ley Park Wood, in mixed litter, 1.i.95, BC.
SP00 Overhill Road, Cirencester, 31.iii.01
SP10 Rack Isle, Bibury (GIG), 1.vii.01
SP12 Fox Farm, Condicote on pond surface, 26.iv.01
ST88 Didmarton, 27.iv.01

317. ***Isotomurus plumosus*** Bagnall. A scarce species, usually found in moss. 2.5mm; grayish brown with dark central stripe.

SO61 Longhope, under elder bark, 13 & 23.ii.96, BC; Longhope, in path moss, 15.xii.96, BC.

318. ***Isotomurus prasinus*** (Reuter). Not widely recorded. 2.5 mm; uniformly greyish-green.

SO90 Old Rectory, Sapperton, 18.v.01
SO91 Caudle Green, 26.iv.01
SP00 Overhill Road, Cirencester, 31.iii.01
SP10 Rack Isle, Bibury (GIG), 1.vii.01
SP22 Lower Oddington, (to be verified), 5.iv.01
ST88 Didmarton, 27.iv.01

344. ***Vertagopus arboreus*** (Linnaeus). Widespread and common among lichen and moss on trees, and under bark. 1.7mm and bluish violet turning blackish in alcohol.

SO72 Ell Brook, Newent, GIG, 21.iv.01
ST99 Jackaments Bottom Farm, in pile of old yorkstone, 3.iv.01

Family TOMOCERIDAE

350. ***Tomocerus longicornis*** (Müller). Very common, especially in gardens. 6.0 mm and the largest British springtail; greyish brown with some bluish pigment on femurs

of legs. Very long antennae that curl into a characteristic coiled shape when blown upon.

SO60 Newnham, 6.iv.96, BC.
SO61 Longhope, in broad-leaved litter, 3.xii.95, 30.x.97, i-iv.98, BC; Wilderness, in broad-leaved litter, 28.ii.96, BC; Worrall Hill, 11.xii.94, BC; Wigpool, vii.94, BC; Sculchurch, 21.xi.96 & 7.ii.97, BC; Hobbs Quarry, in scrub, 12.i & 22.ii.97, BC; Hope Wood, 8.i & 28.ii.97, BC;
SO62 Dancing Green, in broad-leaved litter, no date, BC; Betty Dawes Wood, in oak litter, 14.ii.96, BC.
SO72 Glasshouse Orchard, F.O.D. (GIG), 4.vii.01
SO80 Bisley Road Cemetery, Stroud (GIG), 20.v.01
SO90 Old Rectory, Sapperton, 18.v.01; Siccaridge Wood NR, (GNS), 8.x.01
SP00 Overhill Road, Cirencester, 16.iv.01
SP10 Welsh Way, Ready Token (GIG), 1.vii.01

351. ***Tomocerus minor*** (Lubbock). Widespread and very common. 4.5 mm; greyish-brown with some bluish pigment.

SO60 Nagshead, 30.iii.94, BC.
SO61 Edge End, 11.xii.94, BC; Longhope, under bark, 10.i.96, BC; Longhope, 9.i.95, i-iii.98, BC; Coleman's Wood, 1.vi.94, BC; Wigpool, vii.94, BC; Speech House, on *Laetiporus sulphureus*, 16.vii.94, BC; Hope Wood, on *Tricholomopsis rutilans*, 5.x.96, BC; Sculchurch, in broad-leaved litter, 21.xi.96 & 7.ii.97, BC.
SO72 Newent Lake Park, GIG, 21.iv.01; Glasshouse Orchard, F.O.D. (GIG), 4.vii.01
SO80 Bisley Road Cemetery, Stroud (GIG), 20.v.01
SO82 Ashleworth, in orchard, (GIG), 7.x.01
SO90 Old Rectory, Sapperton, 18.v.01
SO91 Caudle Green, 26.iv.01
SP00 Overhill Road, Cirencester, 31.iii & 8.iv.01; Warrens Gorse, Cirencester, 10.v.01; Smith's Covert, Barnsley (GIG), 1.vii.01
SP10 Rack Isle, Bibury (GIG), 1.vii.01; Welsh Way, Ready Token (GIG), 1.vii.01
SP12 Fox Farm, Condicote, 26.iv.01
SP22 Lower Oddington, 5.iv.01
ST88 Didmarton, 27.iv.01
ST99 Jackaments Bottom Farm, 3.iv.01

353. ***Tomocerus vulgaris*** (Tullberg). Widespread and common. 4.0mm; greyish-black.

SO61 Hobbs Quarry, 7 & 22.ii.97, BC; Sculchurch, in broad-leaved litter, 7.ii & 13.xii.97, BC; Longhope, in broad-leaved litter, i-iii.98, BC.

SO72 Newent Lake Park, GIG, 21.iv.01

SO80 Bisley Road Cemetery, Stroud (GIG), 20.v.01
SP00 Overhill Road, Cirencester, 16.iv.01; Warrens Gorse, Cirencester, 10.v.01
SP12 Fox Farm, Condicote, 2.iv.01
SP20 Fyfield, Lechlade, 14.vi.01
ST88 Didmarton, 27.iv.01

ORDER NEELIPLEONA

Family NEELIDAE

355. ***Megalothorax minimus*** Willem. Very common and widespread in soil and caves. 0.4mm; white.

SP00 Stand Plantation, Calmsden, in litter (Tullgren extraction), 17.ii.01
ST78 Wetmoor SSSI, in broad-leaved litter, 31.v.97, BC.

357. ***Neelus murinus*** Folsom. Common and widespread in soil and caves. 0.7mm; pale brown, orange or yellowish.

SP00 Stand Plantation, Calmsden, in litter (Tullgren extraction), 17.ii.01

ORDER SYMPHYPLEONA

Family BOURLETIELLIDAE

371. ***Heterosminthurus insignis*** (Reuter). Several scattered records from wet habitats. 1.8mm; uniformly yellowish.

SO80 Bisley Road Cemetery, Stroud (GIG), 20.v.01

Family DICYRTOMIDAE

373. ***Dicyrtoma fusca*** (Lubbock). A common and widespread species. 2.0mm; brownish purple.

SO61 Longhope, in holly/oak litter, 29.i.96, BC; Sculchurch, in broad-leaved litter, 7 & 22.ii & 13.xii.97, BC; Hobbs Quarry, 22.ii.97, BC.

SO71 Highnam Wood, in broad-leaved litter, 29.i.96, BC.

374. ***Dicyrtomina minuta*** (Fabricius). Widespread and common. 2.8mm; yellow with a bar of pigment above the tail.

SO61 Speech House, in holly litter, 14.ii.96, BC; Welshbury Wood, in broad-leaved litter, x.94, BC; Longhope, in birch litter, 15.xi.94, BC; Welshbury Hill, in spruce litter, 1.xi.96, BC; Hope Wood, on coppice stool, 5.xi.94 & 22.xii.96, BC.

SO82 Ashleworth, in orchard, (GIG), 7.x.01
SO90 Old Rectory, Sapperton, 18.v.01
SO91 Caudle Green, 26.iv.01
SP10 Rack Isle, Bibury (GIG), 1.vii.01

375. ***Dicyrtomina ornata*** (Nicolet). Widespread and common. 3mm; irregular brown and greenish patches.

SO61 Hope Wood, on coppice stool, 22.xii.96, BC.

SO72 Ell Brook, Newent, GIG, 21.iv.01
SO92 Gloucester Road, Cheltenham, 28.v.01

376. ***Dicyrtomina saundersi*** (Lubbock). Not widely recorded. 3.0 mm; irregular brown and greenish patches of pigment.

SO61 Edge End, 11.xii.94, BC; Longhope, 27 & 28.i.96, BC; Mugglewort, 28.xii.96, BC; Hobbs Quarry, 21.i, 7 & 22.ii.97, BC; Hope Wood, 8.i.97, BC; Sculchurch, in broad-leaved litter, 7 & 22.ii & 13.xii.97, BC.
SO71 Ley park Wood, in broad-leaved litter, 1.i.96, BC; Highnam, 24.i.96, BC.

SP00 Overhill Road, Cirencester, 31.iii.01

Family SMINTHURIDAE

409. ***Allacma fusca*** (Linn.). This widespread and common species is the largest member of the Sminthuridae which occurs in our region. 3.5mm; dark brown.

SO80 Bisley Road Cemetery, Stroud (GIG), 20.v.01
SO90 Siccaridge Wood NR, (GNS), 8.x.01

REFERENCES

Cave, B. Gloucestershire Springtail Records. Unpublished.

Hopkin, S.P., 2000. *A Key to the Springtails of Britain and Ireland (Test Version).* AIDGAP, Field Studies Council.

Hopkin, S.P. Website pages and maps at www.stevehopkin.co.uk.

Scott-Langley, D.A., 2005. *The Springtails of Gloucestershire – Part 1.* The Gloucestershire Naturalist No 16: 93-100. Gloucestershire Naturalists' Society.

GLOUCESTERSHIRE WILDLIFE RECORDING INFORMATION

The Society's official recording area is the whole of the vice-counties 33 (East Gloucestershire) and 34 (West Gloucestershire). However, for practical purposes, certain recorders only cover the administrative county of Gloucestershire, comprising the districts of Cotswold, Stroud, Forest of Dean, Cheltenham, Gloucester and Tewkesbury, since the Bristol Naturalists' Society covers the Unitary Authority of South Gloucestershire and the City of Bristol (further details available from the individual recorders as listed below).

The Society welcomes observations and records from members and others, and these should be sent to the Recorders as detailed below. Records may be submitted in any form (so long as they are legible and intelligible); some Recorders prefer them on A6 cards (one per species), or, for certain groups, on the appropriate recording form (available from the Recorders - see below), though a simple list (preferably in systematic order) is acceptable for groups such as moths.
Ideally the following information should be supplied:

* Species name.
* Where seen (name of location, preferably using names on the 1:50000/1:25000 Ordnance Survey maps; if in doubt include a sketch map of the site) plus six figure map reference. It is helpful to Recorders if the tetrad number is also given. For sightings in the Cotswold Water Park observers are asked to quote the official County Council pit numbers whenever possible.
* Date.
* Observer's name and address.

Also useful:

* Number or abundance.
* Habitat.
* Where appropriate a description of the species or a note of how identification was made including details of any guidebook used.
* Any other relevant information.

These details should be sent to the appropriate Recorder from the list below. The precise location of rare species will be kept confidential in the interests of conservation - records should be clearly labelled CONFIDENTIAL if they are to be so treated. Straightforward records are too numerous to be acknowledged individually by the Recorders, but ***when a reply is required please enclose a stamped addressed envelope***.

The most interesting records are published in the Society's "GNS News", but **all** records are valuable in building up a picture of the present status and distribution of species in our county, for compiling annual reports and for updating our records and those at the Gloucestershire Centre for Environmental Records and the national Biological Records Centre, Monks Wood. The Society's recording is well described in "Dot Mapping and the Recording of Species' Distribution in Gloucestershire" in *The Gloucestershire Naturalist (TGN)*, No.1, 1984, price £2.00 plus £1.00 p. & p., available from the Chairman of the Scientific & Publications Sub-committee (for address see below).

Under the Data Protection Act the GNS advises members and other observers that their personal details (name, address, telephone number, email address) will be stored, either on paper or electronically, as part of the Society's recording system. These details will not be passed on or sold to third parties with the exception of the Gloucestershire Centre for Environmental Records, subject to the Memorandum of Understanding between the two organisations. Should the observer wish that certain parts of a record

remain confidential (e.g. for reasons such as sensitive species, sensitive site, restriction of access to land, anonymity), they should contact the relevant Recorder and discuss the matter, stating their reasons.

NAMES AND ADDRESSES OF RECORDERS
with information on the most up-to-date sources for check-lists

BIRDS: Richard Baatsen, 1 Prestwick Terrace, Bristol Road, Whitminster, Glos GL2 7PA (01452 740161); email: **baatsen@surfbirder.com**. For those observers who are reporting a county rarity or BBRC species, the appropriate forms can be obtained from the Recorder; a guidance document listing all the species that require detailed descriptions is also available (**please send sae**); **submission of records by email preferred** (see also Gloucestershire Bird Report 2005 pp 18-20). The GNS website has a recording form showing all required information that can be printed off. Checklist in *TGN* **5** (1992). Fuller account in *Birds of Gloucestershire* by C.M.Swaine (1982).

- **British Trust for Ornithology Representative**: Mike Smart, 143 Cheltenham Road, Gloucester GL2 0JH (01452 421131); email: **smartmike@btinternet.com**.
- **Gloucestershire Bird Report** (annual report on the county's avifauna) published by Gloucestershire Ornithological Coordinating Committee (GOCC).

MAMMALS: Rosie Kelsall, c/o The Gloucestershire Wildlife Trust, Conservation Centre, Robinswood Hill Country Park, Reservoir Road, Gloucester GL4 6SX. (01452 383333);
email: **rosie.kelsall@gloucestershirewildlifetrust.co.uk**. Checklist in *TGN* **5** (1992).

- **Gloucestershire Bat Group**: Maurice Febry (Chairman), 18 Okus Road, Charlton Kings, Cheltenham, Glos. GL53 8DU (01242 242160)
  Claude Elliott (Recorder), 23 Bowly Road, Linden, Gloucester GL1 5NN (01452 523360)

REPTILES & AMPHIBIANS: Colin Twissell, Arfonia, The Green, Churchdown, Glos GL3 2LE (01452 714413); email: **twissellcandi@aol.com**. Special recording form available. Checklists in *TGN* **5** (1992) & *TGN* **17** (2006).

FISH & CRAYFISH: Pete Bradshaw, c/o The Gloucestershire Wildlife Trust, Church House, Standish, Stonehouse, Gloucestershire GL10 3EU; email: **peterb@gloswild.cix.co.uk**. Fish checklist in *TGN* **5** (1992).

INVERTEBRATES: Gloucestershire Invertebrate Group (GIG): Rebecca Offer, c/o The Gloucestershire Wildlife Trust, Conservation Centre, Robinswood Hill Country Park, Reservoir Road, Gloucester GL4 6SX. (01452 383333); email: **rebeccao@gloucswt.cix.co.uk**.

- **BUTTERFLIES**: Chris Wiltshire, The Brambles, Stinchcombe Hill, Dursley, Glos GL11 6AQ (01453 545509); email: **arion.ecology@virgin.net**. *The Butterflies of Gloucestershire* by Guy Meredith at **http://members.aol.com/bcglos/bflyglos.html**. Butterfly Conservation Gloucestershire Branch: **http://members.aol.com/bcglos**.

- **MOTHS**: Roger Gaunt, Firtree Cottage, St.Briavels, Lydney, Glos GL15 6SB (01594 530475); email: **roger.gaunt@btinternet.com**. *Gloucestershire Moths – An Account* by Roger Gaunt (2000), (2nd edition 2006); *Set of Moth Distribution Maps* by Roger Gaunt (80 maps showing distribution of selected species) (2003).

- **DRAGONFLIES**: Ingrid Twissell, Arfonia, The Green, Churchdown, Glos GL3 2LE (01452 714413); email: **twissellcandi@aol.com**. *Distribution of Dragonflies in Gloucestershire* by S.C.Holland (1991). Checklist available from Ingrid Twissell.

- **HOVERFLIES & LADYBIRDS**: David Iliff, Green Willows, Station Road, Woodmancote, Cheltenham, Glos GL52 9HN (01242 674398); email: **davidiliff@talk21.com**. Ladybirds in *Coleoptera of Gloucestershire* by D.B. Atty (1983).

- **ANTS, BEES & WASPS**: Tony Taylor, Clover Cottage, Chatter Street, Longney, Gloucester GL2 3SN (01452 728734). Hoverfly checklist in *TGN* **14** (in press). Ladybirds in *Coleoptera of Gloucestershire* by D.B. Atty (1983).

- **SPIDERS**: David Haigh, 27 St.Luke's Road, Cheltenham, Glos GL53 7JF (01242 513544); email: **djrhaigh@hotmail.co.uk**. Animals for identification can be sent by post in an envelope containing a small flat non-crushable box holding some moss or slightly damp cotton wool.

- **WOODLICE, CENTIPEDES, MILLIPEDES, HARVESTMEN, FALSE SCORPIONS, LACEWINGS, SPRINGTAILS & FRESHWATER INVERTEBRATES**: David Scott-Langley, 19 Chesterton Grove, Cirencester, Glos GL7 1XN (01285 659631); email: **david@scott-langley.freeserve.co.uk**. Check-lists for millipedes and false scorpions in *TGN* **12** (1999); centipedes in *TGN* **18** (2007); springtails in *TGN* **16** (2005) & **18** (2007).

- **BEETLES (other than ladybirds), SAWFLIES, FLIES (other than hoverflies), BARK FLIES)**: Keith Alexander, 59 Sweetbrier Lane, Heavitree, Exeter, Devon EX1 3AQ (01392 413092); email: **keith.alexander@waitrose.com**. Checklists for bark flies in *TGN* **17** (2006). *Coleoptera of Gloucestershire* by D.B. Atty (1983).

- **GRASSHOPPERS, BUSH-CRICKETS, EARWIGS, & COCKROACHES, BUGS (HEMIPTERA)**: John Widgery, 12 Bushcombe Close, Woodmancote, Cheltenham, Glos. GL52 9HX. (01242 673873). Checklists for bugs in *TGN* **8, 9 & 16** (1995, 1996 & 2005), Checklist for Orthopteroids in *TGN* **15** (2004)

- **LAND & FRESHWATER MOLLUSCS**: David Long, 83 Moorend Road, Leckhampton, Cheltenham, Glos GL53 0HB (01242 527673); email: **david@long55.wanadoo.co.uk**. Checklist in *TGN* **3** (1989).

- **ECTOPARASITES (Fleas, lice, louse-flies)**: Robin Sellers, Crag House, Ellerslie Park, Gosforth, Cumbria CA20 1BL (01946 725453); email: **sellers@craghouse7.freeserve.co.uk**. Checklist of louse-flies in *TGN* **1** (1984).

- **FRESHWATER TRICLADS**: Larry Bellamy, 6 Dean Road, Newnham-on-Severn, Glos. GL14 1AB (1594 516420); email: **lsb@rdplus.net**. Checklist in *TGN* **1** (1984).

FLOWERING PLANTS, FERNS & STONEWORTS: Mark and Clare Kitchen, The Cottage, Bevington, Berkeley, Glos GL13 9RB (01453 810958); email: **markarkitchen@yahoo.com**. *Supplement to the Flora of Gloucestershire* by S.C.Holland, H.M.Caddick and D.S.Dudley-Smith (1986); *The Flora of the Bristol Region* by I.P.Green, R.J.Higgins, C.Kitchen & M.A.R.Kitchen (2000); *Stephen Bishop's New Flora of Gloucestershire*, edited by R.Cooper, in two parts: *TGN* **13** (2000) and (in prep.).

MOSSES AND LIVERWORTS: Peter Martin, 60 West Street, Tetbury, Glos GL8 8DR. (01666 503791); email: **petergmartin@btinternet.com**.

FUNGI: Jack Marriott, Cherrylea, Leigh, Worcestershire WR6 5LD; email: **jack@stswithins.eclipse.co.uk**. Checklist in *TGN* **9** (1996).

- **Cotswold Fungus Group**: Dave Shorten, 45 Sevenfields, Highworth, Swindon, Wilts SN6 7NF (01793 764649).
- **Dean Fungus Group**: Keith Davies, Treveth, Wintles Green, Westbury on Severn, GL14 1QB, (01452 760278); email: **davieskkvv@tiscali.co.uk**.

LICHENS: Ian Carle, c/o GCER, Church House, Standish, Stonehouse, Glos GL10 3EU (01453 822761); email: **ianc@gloswild.cix.co.uk**.

The Society is always on the look out for new Recorders to fill vacant positions (e.g. beetles, flies, freshwaters) or to cover groups not listed above (no matter how obscure!). Anyone willing to undertake these tasks or to organise (or help organise) surveys in the county is invited to contact David Scott-Langley (Chairman, GNS Scientific & Publications Sub-committee), 19 Chesterton Grove, Cirencester, Gloucestershire GL7 1XN; Tel 01285 659631; email: **david@scott-langley.freeserve.co.uk**.

OTHER USEFUL CONTACTS AND ADDRESSES

GNS Web site: **www.glosnats.org.uk**

GNS Webmaster: Robert Homan; email: robert.theapiary@gmail.com (01242 235408)

GNS Library: our library is housed in the main library at Hartpury College (01452 702160). Opening hours: Mon – Fri 9.00am - 5.00pm (- 9.00pm in term time; also Sat & Sun 10.00am – 5.00pm in term time only).

GNS Chairman: Mike Smart, 143 Cheltenham Road, Gloucester GL2 0JH (01452 421131); email **smartmike@btinternet.com**.

GNS Membership Secretary: Andy Bluett, 50 Kingsmead, Abbeydale, Gloucester, GL4 5DY (01452 610085); email: **andrew@glosnats.wanadoo.co.uk**. See also Membership page on GNS Website.

GNS Secretary: Lynne Garner, Moorend Cottage, Watery Lane, Upton St Leonards, Glos GL4 8DW (01452 614354); email: **lynneus1@waitrose.com**.

GNS Cirencester Branch Chairman: David Scott-Langley, 19 Chesterton Grove, Cirencester, Glos GL7 1XN (01285 659631); email: **david@scott-langley.freeserve.co.uk**.

Editor of the GNS News (records and general matters; appears quarterly): Juliet Bailey, Little Haresfield Farm, Standish, Stonehouse, Glos, GL10 3DR (01452 722310); email: **gns.editor@ntlworld.com**.

Editor of The Gloucestershire Naturalist David Scott-Langley, 19 Chesterton Grove, Cirencester, Gloucestershire GL7 1XN (01285 659631); email **david@scott-langley.freeserve.co.uk**. Articles and reports for *TGN* should be sent to the Editor **by February 28th of the year of publication.** Notes for contributors and page layout are available from the same source.
TGN **1** to *TGN* **14** were edited by Robin Sellers, Crag House, Ellerslie Park, Gosforth, Cumbria CA20 1BL (01946 725453); email: **sellers@craghouse7.freeserve.co.uk**. A list of contents of past volumes is available.

Notes for Contributors

1. The Editor will be pleased to receive papers relating to the fauna and flora of Gloucestershire, of a more scientific nature than would be published in the GNS News, as well as annual reports from the County Recorders.
2. Wherever possible, papers for publication in The Gloucestershire Naturalist should be in Microsoft Word and saved as (.doc) files.
3. The font is to be Times New Roman size 10.
4. Titles and section headings should be as in 2. above and will be formatted by the editor.
5. Page size is to be A5 Portrait. The editor will be pleased to email a formatted page for use by the contributor.
6. Drawings and sketches should be camera-ready and, unless the contributor has the technology to incorporate them into his paper, should be supplied on good quality paper or Polydraw drafting film.
7. Maps should be as in 6. above unless they can be electronically generated using programmes such as DMAP or Mapmate.
8. Photographs should be supplied as digital images, 35mm slides, or on good quality photographic paper.
9. All digital images should be as large as possible and saved as .tif or .jpg files and sent to the editor on Compact Disc.
10. For those using traditional methods, manuscripts should be double-line spaced and clearly legible or they will be returned. Drawings, maps and photographs should be supplied as in 6., 7. & 8. above.
11. Contributors will be sent a copy of their paper for proofreading and final alterations before publication if requested.
12. Submission date shall be no later than February 28th for publication the following May/June of the same year.
13. Contributors are asked to submit two or three lines about themselves with their article.