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PROCEEDINGS

OF THE

ISLE OF WIGHT
NATURAL HISTORY AND
ARCHAEOLOGICAL SOCIETY

VOLUME 15 1999

ISLE OF WIGHT NATURAL HISTORY AND ARCHAEOLOGICAL SOCIETY

Objects
The promotion and advancement of the study of the flora, fauna, geology and archaeology of the county.

Activities
The Annual General Meeting on the second Saturday in February. General and sectional excursions, meetings and lectures throughout the year.

Publications
Proceedings and *Isle of Wight Birds* are published annually. Bulletins and Programmes produced biannually. All publications are issued free to members.

Subscriptions (subject to increase for 1999)

Ordinary Membership	£15
Family Membership	£20
Student Membership	£7

Forms of application and other information obtainable from the General Secretary.

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Contents

Proc. Isle of Wight nat. Hist. Archaeol. Soc **15** (pub 1999): 7

EDITORIAL

After two volumes the Editor of the Proceedings, Dr Alan Insole, has decided to retire and pass the honour to me. He was responsible for the Proceeding prior to David Motkin and was editor when the format changed in 1986 and again in 1998. This publication is the mainstay of the Society as it is through this document that we are recognised as a competant and highly respected organisation within the field of natural history and beyond. This image is cultivated by the professional way the Society's Proceedings look and provide information in a clear and concise way. This is no small achievement and we must thank Alan for his past efforts and wish him every success with his new adventures both in this country and overseas.

Having said all that I hope that the current Proceedings carries on the tradition and that you find the information both interesting and educational. The publication date has had to be revised this year in the light of the changes that have occurred but it is my intention to produce the Proceedings as quickly as possible to make them relevant.

I would like to thank those who have helped with the production of the Proceedings and to the authors for making it possible.

Richard Grogan
Editor

OBITUARY

Muriel Lee

Members will be very sorry to hear of the death, after a short illness, of Muriel Lee.

She has been member of our Society since 1982 and during that time has acted as Minuting Secretary and 'official' coffee and tea maker at our General Indoor Meetings. Muriel organised the rota of stewards during the time that we held our exhibition at the Rylstone Chalet and took part in many natural history surveys, some still ongoing. She was very active in many of the section meetings and was always interested in learning something new. She was also one of the willing gang who helped to decorate our headquarters at Rylstone Gardens when we first took it over.

Muriel will be sadly missed by many of her friends. Our sympathy goes to Beth, her sister, as well as the rest of the family.

Proc. Isle of Wight nat. Hist. Archaeol. Soc **15** (pub 1999): 11

PROVISIONAL ATLAS OF THE BRYOPHYTES OF THE ISLE OF WIGHT: MOSSES - AMENDMENTS 1998

Lorna Snow

The following amendments to the published distribution maps (Snow : 1994 , 1997) should be made:

75/2 *Ephemerum sessile* The species should be deleted from the v.c.10 list. The specimen in Bolton Museum (109.1975.899 Gatcombe, H.Livens 11.6.1907) is ' a depauperate form of *Campylopus pyriformis*' (pers. comm. T.Blockeel 1998)

93/3 *Rhizomnium pseudopunctatum* Delete the record from SZ5082, Wilderness, Livens 1907. The specimen is *R. punctatum* (pers. comm. T.Blockeel 1998)

93/1 *R. punctatum* Add SZ5082.

105/3 *Philonotis arnellii* Add this species to the VC10 list. The specimen from Bleak Down, SZ5181, H.H.Knight, dated October 1909, has been found in Bolton Museum, and agreed by T.Blockeel, BBS Recorder.

Author: L.Snow, Ein Shemer, Upper Hyde Farm Road, Shanklin, I.W. PO37 7PS

Proc. Isle of Wight nat. Hist. Archaeol. Soc **15** (pub 1999): 13 - 14

FUNGI NEW TO THE ISLE OF WIGHT: 1998

David A. Carr

Climatic conditions for the growth of fungal fruit bodies were ideal this year. The main annual foray with Dr. Derek Reid and Mrs. Audrey Thomas was held at Walter's Copse, Newtown with the permission of the National Trust, who also kindly allowed us to use their Visitor's Centre at Newtown as a base for identification and for the display of named fungi on tables. A total of 139 different fungi were identified at Walter's Copse, some being confirmed by Dr. Reid after microscopic examination. Four different fungi were brought from Bembridge and one from Ryde, bringing the total for the day to 144, eight of which had not been recorded before on the Island. A short foray, with Dr. Reid and Mrs. Thomas, by a small number of members in Whitefield Wood on the following morning identified 60 different fungi, 28 of which had not been found on the previous day and one which had not been recorded before on the Island.

The Fungi Section of the Society held five other meetings during the autumn and identified 151 species, five of which had not been recorded on the Island previously. These were confirmed by me after examination of microscopic detail such as spores, cystidia and hyphae.

Fungi new to the Island identified by Dr. Derek Reid and Mrs. Audrey Thomas during the Fungus Foray weekend of 3rd/4th October 1998 were as follows:-

Basidiomycetes

Agaricales

Agaricus bohusii	Walter's Copse
Agaricus pilatianus	Bembridge
Boletus leonis	Walter's Copse
Conocybe plicatella	Walter's Copse
Naucoria pseudoamarescens	Whitefield Wood
Russula chloroides	Walter's Copse
Russula gracillima	Walter's Copse
Tricholoma viridilutescens	Walter's Copse
Tubaria pallidospora	Walter's Copse

The following fungi were found during Fungi Section meetings and identified by me:-

Ascomycetes

Ciboria batschiana	Borthwood Copse, 11th October 1998
Tarzetta cupularis	Godshill Woods, 17th October 1998

Agaricales

Collybia prolixa	Borthwood Copse, 11th October 1998
Omphalina chrysophylla	Firestone Copse, 1st November 1998
Pluteus semibulbosus	Brighstone Forest, 27th September 1998

The following micro-fungi new to the Island were identified by Dr. David Biggs:-

Uredinales

Melampsoridium betulinum on *Betula pendula* at Bouldnor Forest on 26th August 1998

Hyphomycetes

Ramularia ari on *Arum maculatum* at Dickson's Copse on 3rd April 1998

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Proc. Isle of Wight nat. Hist. Archaeol. Soc **15** (pub 1999): 15 - 20

FLOWERING PLANTS AND FERNS - 1998

Colin R. Pope

The number of interesting finds in any year is directly proportional to the degree of effort put in by recorders and this year has seen perhaps an intensity of recording effort not mirrored since field work was carried out for Bevis et al (1978). Consequently, many exciting finds have been made. This has been assisted by the weather conditions. Regular spells of wet weather throughout the growing season have resulted in a good year for arable weeds and other annual species. It is particularly welcome to be able to record a number of rare arable weeds at a time when this group of plants are in national decline. This report does not include reference to alien species (although these are being recorded), with the exception of a few of particular interest which are showing signs of becoming established. I am most grateful to the many people who have sent in often very detailed and comprehensive records and have patiently come back with further information when requested. Where necessary, the identification of species has been confirmed by B.S.B.I. referees. Please continue to send in your records as we are now building up a good picture of the many changes in the flora which have occurred since the last published flora.

The report does include a few interesting historic records which have recently been recognised. They are reported within squared brackets. Sometimes, interesting records come to light in unexpected circumstances. I was recently re-examining a collection of pressed flowers made by Brian Warne's daughter, Pauline, when she was a child growing up at East Ashey Farm. I realised that the collection contained many plants which are rare or unknown today. It was made in 1966 from fields around the farm and it illustrates how a rich arable flora of species even considered generally rare at that time still survived. The collection included Lesser Snapdragon (*Misopates orontium*), Red Hemp-nettle (*Galeopsis angustifolia*), Small Toadflax (*Chaenorhinum minus*), Basil Thyme (*Clinopodium acinos*), Corn Parsley (*Petroselinum segetum*) and Shepherd's Needle (*Scandix pecten-veneris*). Altogether, a rich haul of rarities.

Rough Poppy (*Papaver hybridum*)
Many plants found in an arable field margin on Bowcombe Down (BSBI). Very rare today and not previously recorded from this site which held a good arable weed flora.

Good-King-Henry (*Chenopodium bonus-hendricus*)
Plants growing on an extensive manure heap at Gallibury by Brighstone Forest (MB) were subsequently lost when the manure was spread on the land. The first modern record for the Island.

Oak-leaved Goosefoot (*Chenopodium glaucum*)
Several plants growing on farmland in the vicinity of Hill Farm, Carpenters (AC).

Nettle-leaved Goosefoot (*Chenopodium murale*)
Plants growing on waste ground and old manure heaps at Stonelands, Niton (CP).

Fig-leaved Goosefoot (*Chenopodium ficifolium*)
Recorded from an arable field at Rowridge (BSBI); manure heap at Gallibury (MB) with other *Chenopodia;* and growing on a manure heap at Hill Farm, Carpenters (AC).

Small-flowered Catchfly (*Silene gallica*)
Many plants in a sandy field which had previously been turf stripped at Alverstone (BSBI). Sadly the plants could not be refound subsequently by local botanists. A single plant in an arable field at Cridmore (PW, LL). These are welcome records for a nationally scarce species which continues to decline. The Alverstone plants belonged to the variety *quinquevulnera* which has red blotched petals.

Creeping Willow (*Salix repens*)
A single plant found growing in a base-rich flush on the coastal cliff slopes below Headon Warren (BSBI). This species is all but extinct on the Island. There are no historic records from this site.

Bastard Cabbage (*Rapistrum rugosum*)
Well established on the roadside verge at Three Gates Road, West Cowes (JG), a new site.

Yellow Bird's-nest (*Monotropa hypopitys*)
Eight flowering plants beneath beech trees at Calbourne Bottom (AC). Plants were first found in this general area in 1985.

Bog Pimpernel (*Anagallis tenella*)
An unexpected find was a large flowering clump growing in a flooded cavity created by an upturned tree alongside the path through America Woods (CP).

Pirri-pirri-bur (*Acaena novae-zelandiae*)
An alien species, well-established on a roadside verge at Brighstone (MB). The first Island record.

Wild Liquorice (*Astragalus glycyphyllos*)
A single large flowering plant on rough ground near Old Blackgang Road, St Catherine's (BSBI). A very welcome record as this plant has not been recorded for several years and was believed to have been lost. Any other records would be gladly received.

Spring Vetch (*Vicia lathyroides*)
Not infrequent in sandy acid grassland on Row Down, Brighstone (CP). This is a previously unrecorded site which supports an interesting specialised flora.

Small Melilot (*Melilotus indica*)
A single small plant found at the entrance to St Helen's Causeway (AC). This alien species used to be well established on the Duver but has not been seen here, or elsewhere, for many years.

Clustered Clover (*Trifolium glomeratum*)
Found growing on the wide roadside verge at Arreton Cross (BSBI). Not previously recorded from this, the third extant Island site.

Buckthorn (*Rhamnus cathartica*)
A single bush discovered in a new site on private land at Cranmore (BSBI).

Floating Pennywort (*Hydrocotyle ranunculoides*)
A most interesting find, growing in great abundance in the roadside pond opposite Yafford Farm (MB). This is an alien plant first recorded as naturalised in this country as recently as 1990, from the River Chelmer at Chelmsford. By 1992 it had spread up to 12km from its original site and was appearing in other sites in Essex (Payne, 1994) and since then it has appeared elsewhere in South-east England. Its rapid spread suggests that it may become a common species in ponds and ditches. Now it has appeared on the Island a watch should be kept for its spread. Unfortunately, such a recent colonist does not appear in most identification books and a drawing (*Fig. 1*) is provided here. It is a very distinctive, robust species growing as a rooted plant in mud or in free-floating colonies on the surface of still water. Plants growing on mud produce inconspicuous flowers and set seed. Floating plants do not flower but reproduce vegetatively. The stems root at the nodes and are brittle. The plant is a native of North America; it is sold in aquatic plant nurseries as "marsh pennywort" and this is presumably the origin of introduced material.

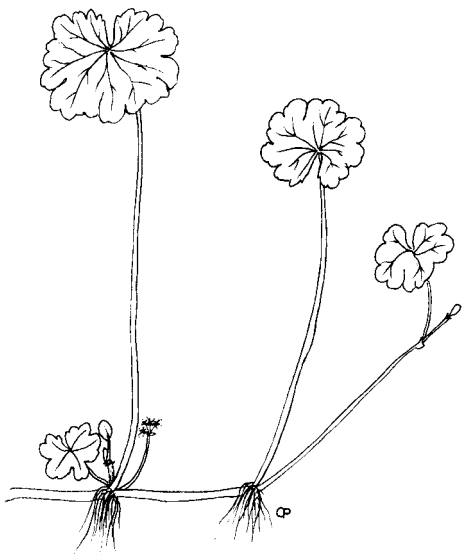

Figure 1. Floating Pennywort.

Dodder (*Cuscuta epithymum*)
Reported as growing luxuriantly over several gorse bushes at Westridge Golf Course, outside of Ryde (IB). Although never previously recorded from this area, this is a species which is being reported more frequently.

Cat-mint (*Nepeta cataria*)
Growing by Embankment Road, Bembridge (AC) and, in 1997, at Bowcombe (SB). These are welcome records as this plant, which is probably native, is rare but probably under-recorded.

Basil Thyme (*Clinopodium acinos*)
Several plants growing in open chalk grassland at Michal Morey's Hump, Arreton Down (m.o.). This site was first found by Audrey Smith and Ian Rowat in 1996, but not confirmed at the time.

Green Field-speedwell (*Veronica agrestis*)
Found growing on a side path at Yarmouth in 1997 (P&GS). This record suggests that it may be a garden weed at Yarmouth. This is by far the rarest of our "weedy" speedwells. There is only one other modern record, from Sainham Farm, Godshill in 1978 (Shepard 1985)

Broad-fruited Cornsalad (*Valerianella rimosa*)
Eleven plants found growing in an arable field margin under Countryside Stewardship at Cridmore Farm, growing with *V. dentata* and *Silene gallica* (PW, LL). This is an important find for this Red Data Book species which continues to decline across the country. There are now very few U.K. sites and this is the first confirmed Island record this century.

Greater Burdock (*Arctium lappa*)
Roadsides near West Court, Shorwell (MB) and Carpenters Road, near Beaper Shute (CP).

Shaggy Mouse-ear-hawkweed (*Pilosella peleterianum* ssp. *peleteriana*)
An investigation of the distribution of this Red Data Book species confirmed that it was well established over a long stretch of cliff at Tennyson and West High Downs (BSBI). This is likely to be the largest population growing on chalk in this country.

Common Cudweed (*Filago vulgaris)*
Several plants in dry sandy patches amongst unimproved grassland at Landguard Manor, Shanklin (CP).

Marsh Arrowgrass (*Triglochin palustris*)
Frequent in a marshy flush at Wydcombe Manor (m.o.). A previously unrecorded site for this species.

Sea Club-rush (*Bolboschoenus maritimus*)
Dominant in an old pond at Beanacre, Ashey (m.o.). This is the only recorded extant inland site. It is growing with Grey Club-rush (*Schoenoplectus tabernaemontani*) and Blunt-fruited Water-starwort (*Callitriche obtusangula*), both plants which are also characteristic of brackish water. The pond is used as a flight pond and occasionally attracts such species as wigeon and teal. This may indicate how these plants have become established; they were not introduced intentionally.

Galingale (*Cyperus longus*)
Well established in a field pond at Swanmore outside Ryde, close to the railway line (RG). This is a non-native site. It has not been seen recently at either of its two native sites namely St Catherine's and Apes Down and is feared to be lost.

[True Fox-sedge (*Carex vulpina*)
This sedge is similar to the much commoner False Fox-sedge (*Carex otrubae*) but *C. vulpina* has not been reliably recorded from the Island. Bill Shepard has established that there is a record based upon a herbarium specimen in British Museum (Natural History) collected at King's Quay in 1920. Clive Jermy, an expert in these matters, considered that "The King's Quay specimen is a good contender on utricle cell shape".]

Flea Sedge (*Carex pulicaris*)
Growing at Golden Hill, in an area recently cleared of invading scrub (CP). Not previously recorded here although not unexpected.

[Tufted-sedge (*Carex elata*)
A specimen at Kew collected by Bromfield in 1840 is confirmed for this species. It was collected from "marshy meadow near the sluice at the head of Brading Harbour". Interestingly, Bromfield recorded this species from "Freshwater Gate in several places" in 1840 in *Flora Vectensis* but does not mention the Brading Harbour site. No herbarium material has been located and succeeding botanists failed to find tufted -sedge at Freshwater and the record was dismissed.]

False Oat-grass (*Arrhenatherum elatius* var. *bulbosum*) "Onion grass"
Onion grass, a variety with swollen basal internodes, was reported from Swanpond Copse in the spring (IR). At the time it was considered to be unusual to find this variety growing in an ancient woodland site under a tree canopy and this prompted a search across the Island. As the year progressed, it became apparent that var.*bulbosum* is widespread in permanent grassland sites across the Island and also occurs, not infrequently, within ancient woodland sites.

Bearded Fescue (*Vulpia ciliata*)
Confirmed from the sandy banks of Ryde Canoe Lake (m.o.). (Conf. Clive Stace). A nationally scarce plant otherwise only known from around Bembridge Harbour. It formerly grew on the Dover at Ryde but was considered lost by 1871.

Lesser Quaking-grass (*Briza minor*)
Found in great abundance in a field of broad beans at Alverstone Farm, Whippingham (BS). This is an interesting record because the plant has recently been considered to be an introduced species and yet, although there have been no records of Lesser Quaking-grass from Whippingham this century, More (1871) says "Plentiful in corn crops on a gravelly soil at Alverstone, Whippingham (J.Pristo)." It is strange that an introduced species should demonstrate such a persistence on a site.

French Oat-grass (*Gaudinia fragilis*)
Abundant in a hay meadow at Ventnor Farm (BS). This is one of the first records of this grass from the chalk. It is common in meadows on heavy clay soils on the north of the Island but should now be looked for on the south of the Island. Also found on the pathside leading up to Garstons Down (SB). It may be being spread by hay cutting machinery carrying propagules across the Island.

Nit-grass (*Gastridium ventricosum*)
Found growing on a roadside wall in the centre of Shorwell (MB). This was a good find as there has only been one other recent record of this plant, from St Catherine's Point in 1982. It is considered to be an overlooked native and is classified as a Red Data Book species.

Loose Silky-bent (*Apera spica-venti*)
Found growing with Small-flowered Catchfly in a sandy field at Alverstone (BSBI). This is the first confirmed record for this nationally scarce grasss, otherwise only known as a casual in the 1920s. Sadly, plants could not be found subsequently by visiting local botanists.

Cockspur (*Echinochloa crus-galli*)
Found growing by the abandoned aviaries in Puckpool Park where it has been known for at least four years (AC).

Yellow Bristle-grass (*Setaria pumila*)
Has appeared in declining numbers by the disused aviaries at Puckpool for several years (AC).

Green Bristle-grass (*Setaria viridis*)
A plant (casual) growing in the corner of St John's car park, Sandown (GT)

Hairy Finger-grass (*Digitaria sanguinalis*)
Several plants in a field edge by Bathingbourne Lane (DB).

White Helleborine (*Platanthera chlorantha*)
A group of about thirty flowering plants beneath beech towards the northern end of Brighstone Forest (MS). Around 150 plants in the holm oak wood on St Boniface Down (AB). These were almost certainly the finest displays of this orchid ever recorded on the Island. As beech plantations mature across the Island we may see more of this plant in the future.

[Scarce Tongue-orchid (*Serapias neglecta*)
There has been interest in tongue-orchids of late as three species have appeared in sites in the south of England in recent years. This interest has brought to light an old record from the Isle of Wight. "In a cornfield, Binstead, Isle of Wight, June 2, 1918, noticed for several years, Mrs Wedgewood. Unfortunately the roots were removed by the tenant to a garden."(*BEC Rep.***5**:308). A specimen is held at Oxford. This is a rather localised species of the central Mediterranean, and may have been accidentally introduced with imported cereal seed (Rich & Jermy 1998).]

Greater Butterfly-orchid (*Platanthera chlorantha*)
Seven plants, including three with flowers, by the entrance to Appuldurcombe Copse, Wroxall (JS). This is the first record of this species from the south of the Island for many years.

Recorders:

IB	Ian Boyd	BSBI	BSBI Weekend (27-28 June)
DB	David Biggs	SB	Sue Blackwell
MB	Margaret Burnhill	AB	Andy Butler
AC	Ann Campbell	JG	Jean Gaffney
RG	Richard Grogan	LL	Lee Lock
m.o.	Botany Group of IWNHAS	CP	Colin Pope
IR	Ian Ralphs	BS	Bill Shepard
JS	Jonathan Simons	MS	Martin Smith
P&GS	Paul & Gretel Stanley	GT	Geoff Toone
PW	Phil Wilson		

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Botany Recorder: Dr C.R.Pope, 14 High Park Road, Ryde, Isle of Wight PO33 1BP

Proc. Isle of Wight nat. Hist. Archaeol. Soc **15** (pub 1999): 21 - 24

ODONATA RECORDS FOR 1998

J M Cheverton

Many local observers considered that 1998 was a poor year for dragonflies and damselflies but the analysis of the records received showed that for most species it was an average year. An exception was the small decrease in sightings of the Golden-ringed Dragonfly *Cordulegaster boltonii*, never a common species on the Island.

Annual comparisons are always made difficult by changes in the number of observers and knowledge of how much effort was devoted to recording by each one. This year one regular observer was unable to make a return and this has reduced the total numbers of sightings for most species, probably considerably. Against this there was a small number of records from a few new observers.

This year there were reports of dragonflies seen over beaches on the southern coast of the Island, localities where the species noted would not normally be expected to occur. Although there was no direct evidence of immigration, this remains a possibility. The records are listed under the individual species.

Hopes of seeing a very rare migrant dragonfly were raised when there was a report of the sighting of a possible male Lesser Emperor *Anax parthenope* at Marvel Farm north reservoir on 16 August (DD). Several observers visited the reservoir in the next few days, most unsuccessfully, but at least two are understood to have seen the dragonfly. Apart from a letter sent by the original observer to the organiser of the Migrant Dragonfly Project outlining the circumstances of the sighting, only one other report providing supporting evidence has been received. It seems likely that, in the absence of a photograph or further substantiating reports, the sighting may not be accepted for national records. For this reason it has not been listed below.

Calopteryx virgo (Beautiful Demoiselle)
Another average season with 42 seen all in Walter's Copse or at Shalfleet. The first was recorded at 'Wild Tracts', Shalfleet (SZ4189) on 10 May (VG) and the last at the same locality on 13 August (VG).
On 19 May a damselfly, probably of this species, was seen flying to the north-east over Afton Down (SZ3685) from the direction of Compton Bay (SK-J).

Calopteryx splendens (Banded Demoiselle)
A fair year with around 215 seen. The first were recorded by the Yar at Alverstone (SZ5785) on 16 May (AJLB) and the last on the Yar near Roud (SZ5180) on 18 August (BR).

Lestes sponsa (Emerald Damselfly)
Numbers were much the same as in 1997 with 34 reported and once again they were nearly all from one locality - the MOD Range, Porchfield. The first was seen in Walter's Copse (SZ4390) on 29 June (BJA) and the last at Claydon Pond (SZ441909), MOD Range, Porchfield, on 7 August (BJA).

Platycnemis pennipes (White-legged Damselfly)
None reported. This species has decreased in range and number on the Island; the last was recorded in 1992. It should be sought along the Yar between Redway and Horringford.

Pyrrhosoma nymphula (Large Red Damselfly)
A much better year with around 425 reported, occasionally in quite large numbers. The first was seen on the cycle track in the Alverstone Mead Reserve (SZ582854) on 26 April (JDR) and the last over a garden pond at Northwood (SZ476935) on 19 July (MC).

Ischnura elegans (Blue-tailed Damselfly)
Very common and widespread. The first were seen at St Helen's Common (SZ633892) on 13 May (AJLB) and the last at two localities on 29 August; a pond at Brading Marsh (SZ609882) (DD) and a pond at Gurnard Farm (SZ4795) (WD).
Female *forms infuscans* and *rufescens* were noted during the year.
A count exceeding 500 was made at a pond near Marsh House, Brading, on 29 May (DD).

Enallagma cyathigerum (Common Blue Damselfly)
Another very good year with over 1270 reported. The first were seen in Newport Cemetery (SZ502896) on 19 May (RS) and the last at Bleak Down (SZ5181) on 5 September (DTB).
A count of over 800 was made at Ford Farm reservoir (SZ514796) on 30 June (DD).

Coenagrion pulchellum (Variable Damselfly)
There were no reports of this locally rare species.

Coenagrion puella (Azure Damselfly)
Another very good year with over 1600 reported from widespread localities, often in large numbers. The first was seen at Locks Farm (SZ445909) on 4 May (BJA) and the last over a garden pond at Shanklin (SZ576810) on 2 August (JMC).

Aeshna juncea (Common Hawker)
After the large number recorded in 1997 there was a return to more usual numbers this year with only three reports. The first was a male in Fattingpark Copse (SZ5291) on 4 July (DTB), the second a male and female on reeds by the causeway between the large ponds at Harbour Farm, Bembridge (SZ637880) on 19 July (JMC) and the third was one seen in a ditch at Alverstone Mead Reserve (SZ582851) on 11 September (JDR).

Aeshna grandis (Brown Hawker)
None reported.

Aeshna cyanea (Southern Hawker)
An average year for one of our commoner dragonflies with 90 reported. The first was a female seen in the Alverstone Mead Reserve (SZ582851) on 18 May, a very early date (JDR) and the last at St Catherine's Point (SZ4975) on 19 October (AJLB). Possible immigrants were three at Luccombe landslip (SZ5878) on 13 August (AJLB) and a male there on 10 September (DD).

Aeshna mixta (Migrant Hawker)
A very good year with at least 150 reported. The first was seen near Locks Farm (SZ4490) on 17 July (AJLB) and the last in Stag Lane (SZ5091) on 7 October (DTB).
Possible immigrants were two at Whale Chine (SZ4678) on 8 August (DD), two at Luccombe landslip (SZ5878) on 13 August (AJLB), two at Woody Point (SZ5376) on 16 August (AJLB) and one on Whale Chine undercliff (SZ471780) on 20 September (AJLB).

Anax imperator (Emperor Dragonfly)
A good year with at least 180 reported. The first was a teneral female at Locks Farm (SZ4490) on 16 May (BJA) and the last over a pond near Scotchell's Brook at Landguard (SZ577830) on 20 September (AJLB).
Possible immigrants were two in Wheeler's Bay (SZ569775) on 5 August (AJLB) and one in Monk's Bay (SZ579779) on 4 August (AJLB).

Cordulegaster boltonii (Golden-ringed Dragonfly)
Fewer than in recent years with 24 reported. The first was seen in the Alverstone Mead Reserve (SZ582852) on 19 June (JDR) and the last at Stapler's Farm (SZ5288) on 12 August (PA).
A possible immigrant was one at Luccombe beach (SZ5879) on 5 August (AJLB). One flew south-west out to sea at Rocken End (SZ4975) on 2 August. It was watched through binoculars until out of sight (AJLB).

Libellula depressa (Broad-bodied Chaser)
A good year with 141 reported. The first, totalling seven, were seen on 12 May: one at Coombe Bottom (SZ562781) (AJLB), one in Walter's Copse (SZ431905) (RS) and five at 'Wild Tracts' Shalfleet (SZ4189) (VG). The last was a female ovipositing in a pond at Hardingshute (SZ597884) on 21 July (DD).
Possible immigrants were three over the beach at Monk's Bay (SZ579779) on 29 May (AJLB).

Libellula quadrimaculata (Four-spotted Chaser)
Seven of this locally scarce species were recorded, all but one from the ponds near Marsh House, Brading (SZ609882). The first was seen there on 21 May (DD) and the last on 21 June (AJLB). Away from this locality there was one at the east end of Culver Down (SZ6385) on 10 June (AJLB).

Orthetrum coerulescens (Keeled Skimmer)
Only one visit was made to the one locality known to be inhabited by this species, access to the ledges and undercliff near Whale Chine having been made difficult and hazardous by the large rainfall in April, June and July. Twenty males and five females on the undercliff there (SZ471780) on 8 August (AJLB).

Orthetrum cancellatum (Black-tailed Skimmer)
Another good year for this species with at least 200 reported. The first were three tenerals at Marsh House ponds, Brading (SZ609882) on 24 May (DD) and the last were nine males and a female at Marvel Farm north reservoir (SZ502873) on 18 August (JMC, BR).

Sympetrum striolatum (Common Darter)
Another excellent year for this common and widespread dragonfly with at least 750 seen. The first was noted on the Shide to Blackwater cycle track on 21st June (PG) and the last at 'Wild Tracts', Shalfleet (SZ4189) (VG) and Alverstone Mead Reserve (SZ581853) (JDR) on 10th November.

Sympetrum sanguineum (Ruddy Darter)
Another outstanding year with 435 seen. The first, a female, was seen in Walter's Copse (SZ431903) on 30 May (JDR) and the last, a male, at St Helen's Common on 29 October (AJLB).

OBSERVERS

I thank the many observers who have contributed records, only a small number of which are shown above. Those mentioned in the text are

Mr P Abbott (PA)
Mr B J Angell (BJA)
Dr D T Biggs (DTB)
Mr A J L Butler (AJLB)
Mr M Cahill (MC)
Mr J M Cheverton (JMC)
Mr D Dana (DD)
Mr W Downer (WD)
Ms P Gaylor (PG)
Ms V Gwynn (VG)
Mr S Knill-Jones (SK-J)
Mr B.Ransom (BR)
Mr J D Ralph (JDR)
Mr R Smout (RS)

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ADDITIONAL RECORDS OF PLANT GALLS FROM THE ISLE OF WIGHT

D.T. BIGGS

Bacteria 20.4.98 DTB/MFB

Xanthomonas populi (Ridé) Ridé

Several small galls or cankers on young branches of a planted balsam poplar, *Populus trichocarpa* in Godshill at SZ529818 were probably caused by this species. The galls consisted of hypertrophied scars, surrounded by swollen woody excrescences, and containing longitudinal splits which exuded a slimy fluid. Meikle says that this species of poplar is particularly susceptible to bacterial cankers.

Fungi 30.12.98 NB

Sphaerotheca pannosa (Wallr.) Lév.

This is a powdery mildew which causes a dense mat-like felt on the stems of roses, particularly cultivated varieties. One stem of dog-rose, *Rosa canina* in Parkhurst Forest at SZ468905 was found to be thickened and curved between several enveloping sleeves of this fungus.

Acari 3.8.98 AR

Aceria schmardai (Nalepa)

In a chalk pit on Tennyson Down (SZ321854) Anne Riley noticed that dozens of plants of clustered bellflower, *Campanula glomerata* had an odd appearance. The flowerheads were shrunken and the flowers had not developed. Microscopy revealed that the floral structures, pistil, stamens and petals had been replaced by small leaves (phyllanthy) and hundreds of eriophyid mites were present in the flowers. The English literature did not help here but Houard and Dauphin and Aniotsbehere both had descriptions and illustrations.

Cecidophyopsis psiaspis (Nalepa) 16.5.98 DTB

On a clipped yew, *Taxus baccata* in Fairlee Cemetery at SZ503897 whilst searching for the small artichoke galls caused by a dipteran I came across a curious much enlarged and thickened axillary bud similar to “big bud” on hazel or currant. Examination under the microscope demonstrated the presence of eriophyid mites amongst deformed leaf tissue.

Phytoptus sorbeus (Nalepa) 11.5.98 DTB

Near East Cowes Cemetery at Kingston, SZ504945 a hedgerow rowan, *Sorbus aucuparia* had leaves which showed white felt patches on the undersides. Such felt-like patches known as filz-galls in German are typical of mite galls and are produced by the development of unicellular epidermal hairs. This particular mite causes the production of club-shaped hairs.

Hemiptera 27.3.98. DTB

Myzus persicae (Sulzer, 1776)

This is an aphid which produces thickening and deformity of the leaves of many host plants causing severe leaf-curl on, for example, peaches and potatoes. It is a major vector of plant virus diseases. At Dodnor SZ504912 there is a hedgerow with at its base a flourishing colony of greater periwinkle, *Vinca major*. Several leaves were galled by this aphid.

Diptera 18.7.98 SB

Dasineura hygrophila (Mik, 1883)

Susan Blackwell, Bill Shepard and I were investigating The Wilderness, SZ505824 when Sue found a plant of common marsh-bedstraw, *Galium palustre* which had the terminal leaves thickened and deformed, producing a bud-shaped reddish gall which on opening later was found to contain yellow dipteran larvae. This gall is only found on *G.palustre* and I can find no reference to it in the English literature on galls although the fly is listed in Kloet and Hincks.

Dasineura papaveris.(Winnertz, 1853) 1.7.98 DTB

One capsule of common poppy, *Papaver rhoeas* on Bowcombe Down at SZ468874 attracted immediate attention as it was open and the septa were radially disposed outwards, grossly thickened and black and sticky. Numerous reddish-yellow dipteran larvae were present between the septa. In the European literature it is stated that the gall midge gains entry into the capsule through a hole bored by a weevil a few hours previously and that the midge larvae besides causing the development of the gall contaminate the seeds with their saliva so that infestation is almost invariably followed by the appearance of mould. My specimen very soon was covered with a thick growth of a mould.

Lepidoptera 26.8.98 DTB

Mompha sturnipennella (Treitschke, 1833)

A markedly thickened seed-pod of rosebay willowherb, *Chamerion angustifolium*, deformed into a U-shape, at Bouldnor Forest SZ384902 was taken home and opened to reveal a lepidopteran larva. It soon pupated and hatched two weeks later. It was identified by Dr. John Langmaid as the above species, a new moth for the Island. The first generation larva makes a gall in the flowering part of the stem, the second generation in a gall high up or, more commonly in a seed pod. I have found no reference to the larva causing deformity of the seed-pod.

Observers.

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AR A.Riley.

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NON-OAK CYNIPID GALLS ON THE ISLE OF WIGHT

D. T. Biggs

The gall-wasp family Cynipidae is part of the Hymenoptera Parasitica but the insects of the sub family Cynipinae to which all the gall-causers belong are atypical in that they feed on vegetative tissues.

The Cynipinae consists of four tribes.

1. Aulacidini. These are the most primitive gall-wasps producing relatively simple galls. There are twenty British species mostly attacking Asteraceae (Compositae).

2. Rhoditini. There are only six British species all in the genus Diplolepis and galling roses, *Rosa.*

3. Cynipini. These wasps produce the structurally complicated galls on Oaks, *Quercus* which have been discussed in a previous paper.1

4. Synergini. This tribe comprises the inquiline gall-wasps, species which cannot initiate gall formation but dwell in, or take over, the galls of other wasps, occasionally modifying them.

This paper will discuss the galls caused by some gall-wasps of the tribes Aulacidini and Rhoditini. These insects do not exhibit an alternation of generations as do those of the Cynipini. Each species produces but one form of gall on its host plant

Phanacis hypochoeridis (Kieffer, 1887)
The gall is on the main stem of cat's-ear, *Hypochaeris radicata*. It presents initially as an elongated green succulent swelling, glossy and wrinkled or grooved longitudinally, low down on the stem. Usually its length is about 20 mm but it can be up to 50 mm. It is plurilocular, containing up to fifty round or oval larval chambers usually placed near the centre of the gall and each containing a yellowish-white larva. The gall is full-grown in August/September and the larvae pupate within and emerge as adults in spring. By winter the gall has become very hard, greyish-brown and noticeably grooved, often producing a marked bend or curve in the stem.

This gall was not recorded by Swanton (Swanton 1937). It has now been recorded from eight tetrads in six of our 10km. squares. It is particularly common on the cliffs above Compton Bay and Colwell Bay.

Aulacidea hieracii (Bouché, 1834)
This wasp produces longitudinal or pyriform galls on hawkweeds, *Hieracium spp.* They are solitary galls which usually arise on the stem but may occur on the root or in the inflorescence. The often asymmetrical swelling is 20-30 mm long and when first visible in June is thickly covered in grey hairs. Initially green, it can become tinged pink or red. It is plurilocular and each of the 20 or so chambers contains a single yellow larva. The larval cells are found in the succulent tissue which surrounds the central empty space in the gall. When growth is complete by late August the gall becomes brown and by then is quite glabrous. The larvae overwinter in the gall and pupate there in spring, the adult wasps each emerging through separate circular exit holes in late spring or early summer. Swanton had one record near Newport (Frank Morey).

I have recorded this gall twice only, from Sud Moor in 1991 and from Compton Bay in 1997.

Aylax minor (Hartig, 1840)
This wasp galls red poppies, *Papaver spp*. The female wasp lays her eggs in the developing flowerbuds and the larvae develop in the ovules, one white larva in each and up to fifty in a single ovary. When fully developed the galls are c.2mm across, round or oval in shape and white in colour, with a hard wall developed from the ovule, and embedded in the somewhat swollen internal partitions of the seed-pod. The larval cells remain completely separated. From outside these galled seed-pods are scarcely noticeable. They are not swollen; they are at most only very slightly deformed; but the capsule when still green is clearly harder on palpation than the un-parasitized pod. The galls start to grow in June and mature in July/August. Pupation takes place in the capsule and the adult wasps emerge through the sidewall of the seed-pod when the exit holes draw attention to this otherwise inconspicuous gall.

This gall was not recorded by Swanton. I have never seen the gall myself but I have one record from Atherfield Point in 1984.

Aylax papaveris (Perris, 1839)
The common poppy, *Papaver rhoeas* and the long-headed poppy, *Papaver dubium* act as hosts for this gall wasp. It colonises the partitions or septa between the compartments of the fruit which swell enormously and almost fill the seed- capsule. Embedded in the swollen spongy septa which constitute the plurilocular gall are the individual pale brownish-yellow hard-walled larval chambers, about 5mm across and between ten and sixty in number, each containing a single larva. Growth begins in June and is complete by August. Pupation takes place within the gall and the adult wasps emerge through the capsule wall and their exit holes draw attention to the fact that the plant is galled. Occasionally the seed-capsule is noticeably swollen with an irregular and shining surface. Rarely it can be strongly deformed and indeed it can become spherical.

Swanton had one record, from near Shorwell and this is still the only record I have.

It is interesting to note that the first experimental gall was obtained by Molliard (Molliard 1917) by injection of a crude extract of ground larvae of this wasp into the ovary of *Papaver rhoeas*. Cynipid larvae emit auxin-like substances which stimulate the host plant to produce the hypertrophied tissue which constitutes the gall.

Isocolus jaceae (Schenck.1862)
This wasp galls the achenes of knapweeds, *Centaurea scabiosa* and *C.nigra*. From outside nothing can be seen of the gall but by palpating each seed-head the parasitized ones can be distinguished from the normal ones by their being woody hard. Could this possibly be the origin of the name "hard-head" as an alternative to knapweed? One to several achenes in a head are strongly swollen, egg-shaped or cylindrical, 3-4 mm in size, the wall being brown and very hard. Each galled achene is home to a single white larva. The galls are mature by July.

This gall was not recorded by Swanton. I have only four records, all on *Centaurea nigra* but no doubt this gall is overlooked.

Liposthenus latreillei (Keiffer, 1898)
On ground-ivy, *Glechoma hederacea*. This gall is a globular fleshy reddish hairy swelling on the stem and leaves, up to 20 mm in diameter. It is unilateral and matures in August/September by which time it has become very hard and woody. The larva pupates within and emerges the following May. This gall is very noticeable and is unlikely to be overlooked where it is present, especially when two or more galls coalesce to form a much larger swelling. Old galls are grey and fibrous and on sectioning reveal an inner larval cell supported in an empty space by radiating spokes of fibrous tissue. The galls of this species were once eaten by French peasants and in Hungary country folk refer to them as cats' bollocks (Csóka 1997).

Swanton recorded this species from Bowcombe Down (Frank Morey), Brook etc. I have recorded it from seven of our ten 10km squares.

Taylor (Taylor 1949) detected a high concentration of RNA in the salivary glands of the larvae of this cynipid and assumed that this secretion affected the RNA mechanism of the host plant tissues to cause cell division and induce galls.

Diastrophus rubi (Bouché, 1834)

Generally on bramble, *Rubus fruticosus.* This wasp may also parasitize dewberry, *R. caesius* and raspberry, *R..idaeus*. In spring oviposition occurs on a young soft green stem, often on one of the long arching branches, particularly low down in a hedgerow. The affected part swells, becomes curved, has few prickles and eventually the stem bears an elongated swelling upto 15cm long by about 1cm wide, greenish yellow to pink to purple in colour and covered with small protuberances which indicate the position of the underlying larval chambers. There may be up to 200 of these each containing a single white larva in a hard yellow-walled chamber approx.2.5mm in diameter and situated towards the periphery. By October or November the galls are dark brown in colour and the larvae pupate over winter, the imagines emerging in spring through individual circular exit holes in the surface protuberances. Old galls are very persistent and more noticeable in winter.

Swanton described this gall as not uncommon and gave records from Bowcombe Down, Newport (Frank Morey), Brook, Shorwell etc. I now have records from all but one of our ten 10km squares.

Diplolepis rosarum (Giraud, 1859)

The spiked pea gall on *Rosa spp*. Cultivated roses are rarely galled except for the suckers arising from the rootstock onto which they have been grafted. This is a pea-shaped and pea-sized gall bearing one to six long spines and developing on one surface of a leaflet, usually the under surface, sometimes solitary and sometimes in groups of up to about six together. Initially in July they are greenish-yellow but become pink and then brown by maturity in October. Each contains one chamber and one larva. The larva pupates in the fallen gall over winter and emerges in the spring.

Swanton had one record, from Bowcombe Down (Morey 1909). There are to date records from 22 tetrads in eight 10 km squares.

The Smooth Pea Gall on *Rosa* spp. may be caused by the following related insects :

Diplolepis eglanteriae (Hartig, 1840)
Diplolepis centifoliae (Hartig, 1840)
Diplolepis rosarum (Giraud, 1859)

It used to be thought that the spiked pea gall was caused by *Diplolepis rosarum* and that the smooth pea gall was caused by *Diplolepis eglanteriae* . The present state of thinking is that the smooth pea gall may be caused by each of these three species of gall-wasp and that no satisfactory method exists of distinguishing the species from their galls; but that the adult insects may be separated quite easily using the keys in Eady and Quinlan (Eady and Quinlan 1982)

The smooth pea gall grows on the leaflet, the rachis, sepal or stem. It also can colonize the Bedeguar, another leaf gall. It most often develops on the underside of a leaflet, is often solitary, but as many as fifteen may be present on one compound leaf. They are about 6mm in diameter, globular and smooth, unilocular and unilarval, first appearing in July when they are pale green and changing colour to rose-red by September or October. They fall to the ground in autumn, the larva pupating within to hatch as an adult wasp in spring. If the galls develop in sunlight on the upper surface of the leaf they are often strongly reddened.

The galls are usually found on *Rosa canina*, less frequently on *R.rubiginosa* and infrequently on *R.arvensis* and *R..pimpinellifolia*.

The map and data given for *Diplolepis eglanteriae* actually refer to the smooth pea gall. Those given for *D.rosarum* refer to the spiked pea gall. *Diplolepis rosarum* is thus actually more common than indicated and *Diplolepis eglanteriae* scarcer.

Swanton had one record for the smooth pea gall, from Pan Shute, (Frank Morey). I now have records of the smooth pea gall from eight of our ten 10 km squares, including one from *Rosa sherardii* from Rowridge in 1995. I have been so far unsuccessful in breeding out the adult wasps in order to identify them to species level

Diplolepis mayri (Schlechtendal, 1877)

Occurs on *Rosa canina, R.micrantha* and *R.rubiginosa*. Usually the young twig is galled, occasionally the leaves or the fruit and in my experience it is most often found close to the ground in young plants. The gall consists of an irregularly shaped group of more or less coalescent spherical individual galls with the surface sparsely covered in short stiff unbranched spines. Green initially then with reddish tints when mature, it is soft when young, later becoming quite hard. The old gall remains on the host plant for some considerable time after the emergence of the adult gall-wasps in July of the second year. The whole mass may reach up to 40mm in diameter and the individual galls are unilocular and unilarval with hard walls.

This gall did not appear on Swanton's list but I have five records from three 10 km squares.

Diplolepis rosae (Linnaeus, 1758)

Robin's Pincushion or Bedeguar on *Rosa spp*. Robin here is not Redbreast but Goodfellow and Bedeguar is via Bédegar, French from Persian Badawar, 'borne on the wind'. The well known and conspicuous brightly-coloured mass of tangled hairs conceals the real structure of the gall which is a conglomeration of up to 60 larval chambers which develops on the twigs or leaves. The impression is given initially of a ball of green moss which first appears in early summer, changing colour through pink and crimson to reddish brown. It may be up to 100 mm in diameter and by September is a fine object, obscuring the very hard unilarval chambers and the larvae, completely surrounded by the long branched and sometimes sticky hairs. By late autumn it has blackened and lost many of its hairs and by winter it appears as a hard brown ball. It remains on the bush with the pupae still within and the adult insects emerge in May of the following year.

In Swanton's list of Island galls it was recorded only on *Rosa rubiginosa* and from Staplers (Frank Morey) and Mottistone.

I have records now from each of our ten 10 km squares and although I regret most host plants have not been recorded to species level I do have confirmed records from *Rosa arvensis, Rosa canina*, and *Rosa rubiginosa*. I have not recorded this gall on a cultivated rose although it does occur on suckers from the rootstock.

Diplolepis spinosissimae (Giraud, 1859)

On the Island this insect has been found to gall only Burnet Rose, *Rosa pimpinellifolia*. Elsewhere in England it has also been reported from *Rosa canina* and in the Netherlands from *Rosa rubiginosa* as well. Whereas the smooth pea gall and the spiked pea gall are spherical swellings situated on the surface of the plant and in fact joined to it by a thin frail pedicel, the galls of *D.spinosissimae* are situated within the host tissue, this being usually a leaf midrib or petiole but occasionally a twig, a sepal or flower. Initially green when growth starts in June, becoming purple or even bright red by September, the size and shape of a small olive, the surface may be smooth or covered with minute spines and is often curiously angulated. Usually solitary but occasionally conglomerated, the gall is prominent on both surfaces of a leaflet when this is affected, with the serrated leaf edge forming a kind of fringe around it. It is soft and succulent when young and each gall may contain up to eight

larval chambers each containing a single larva which overwinters in the gall as a pupa either on the ground after leaf-fall or sometimes on the bush.

Swanton had records from Hamstead and Bouldnor (Frank Morey) and Brook. It is still common at Bouldnor but I only have records from three of our ten 10 km squares.

Galls as yet unrecorded here.

Of the twenty known British species of the Aulacidini the galls of only seven have been identified on the Isle of Wight. The others may be genuinely rare or indeed absent from here but perhaps their inconspicuous nature or their position on a somewhat hidden part of the plant has resulted in their not being identified.

1. *Phanacis caulicola* in the stem of bristly oxtongue, *Picris echioides* causes a barely visible swelling but exit holes in the autumn would be visible. Reputedly rare.

2. *Phanacis centaureae* causes a multilocular stem gall in various knapweeds, *Centaurea spp*. which can be so inconspicuous as to require sectioning of the stem to identify. Local.

3. *Phanacis sonchi* causes a multilocular stem gall on sow-thistles, Sonchus spp. Birmingham and Surrey only so far.

4. *Phanacis taraxaci* causes a swelling of the base of the midrib of the leaf of dandelion *Taraxacum officinale.* Very rare.

5. *Aulacidea pilosellae* causes a swelling of the midrib or petiole on mouse-ear hawkweed, *Pilosella officinarum*. Scarce, local.

6. *Aulacidea subterminalis* causes a gall on the runners at the base of the rosette of leaves of common hawkweed, *Hieracium vulgatum*. Rare.

7. *Aulacidea tragopogonis* causes a multilocular gall on the roots and in the stem base of goatsbeard and salsify, *Tragopogon pratensis* and *T.porrifolius*. Locally common.

8. *Aulacidea follioti* galls prickly sow-thistle *Sonchus asper*. The first British record was from the Essex marshes in 1993, It has been known in France since 1972. Which part of the plant is galled is unclear from the published literature (Bowdney, 1964).

9. *Isocolus fitchi* causes a unilocular swelling in the base of the stem of greater knapweed, *Centaurea scabiosa*. Scarce.

10. *Isocolus rogenhoferi* is found in the achenes of *Centaurea scabiosa*, producing a gall identical to that of *Isocolus jaceae*, and also producing swellings of the involucral bracts. The imagines are distinguishable. Locally sometimes common.

11. *Isocolus scabiosae* in stems of *Centaurea spp*. causing a very obvious swelling, elongated, striated and plurilocular.. Local and scarce.

12. *Xestophanes brevitarsus* in stolons and petioles of tormentil, *Potentilla erecta*. The galls are grouped green or brown, nodular swellings. Locally common.

13. *Xestophanes potentillae* produces bead-like swellings on the stolons and petioles of *Potentilla reptans*, creeping cinquefoil. Locally common.

The Distribution Maps.

The Distribution Maps accompanying this article show the occurrence of gall-forming species based on fieldwork carried out between 1975 and 1998.

KEY:

● Swanton (1937) records where not recently confirmed.

■ Recent records

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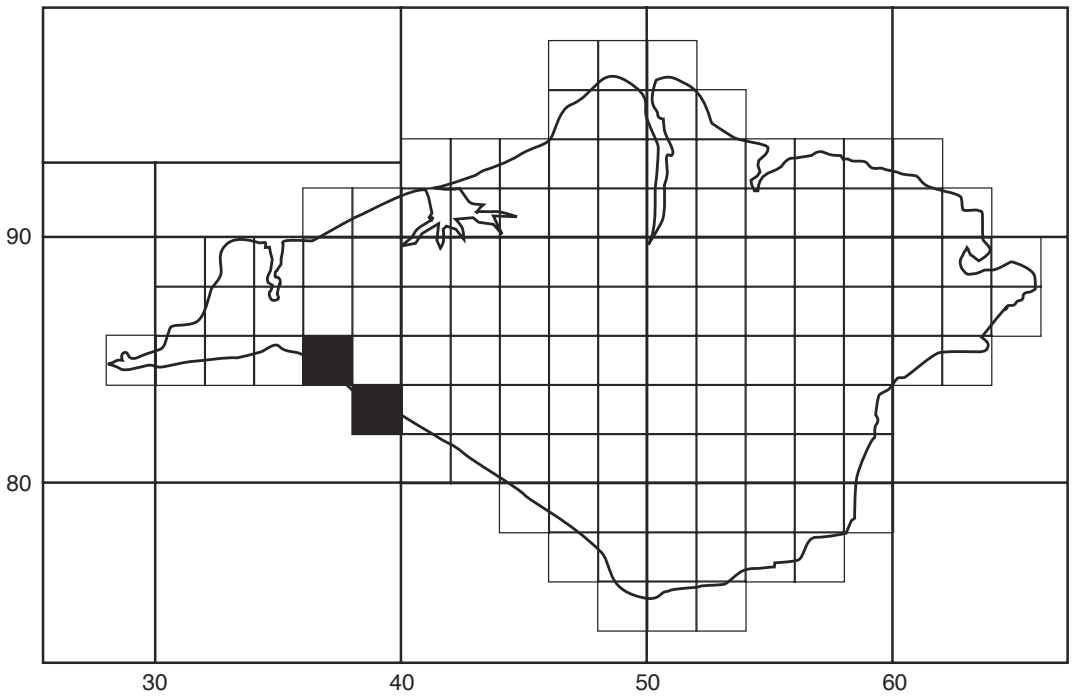
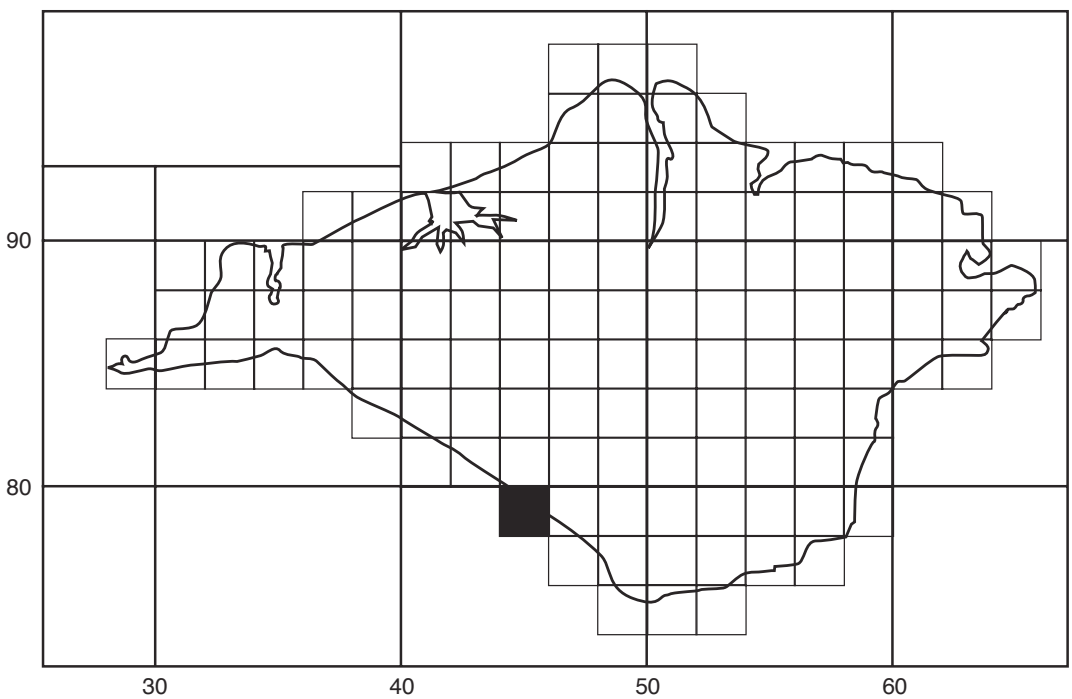
Aulacidea hieracii



Aylax minor



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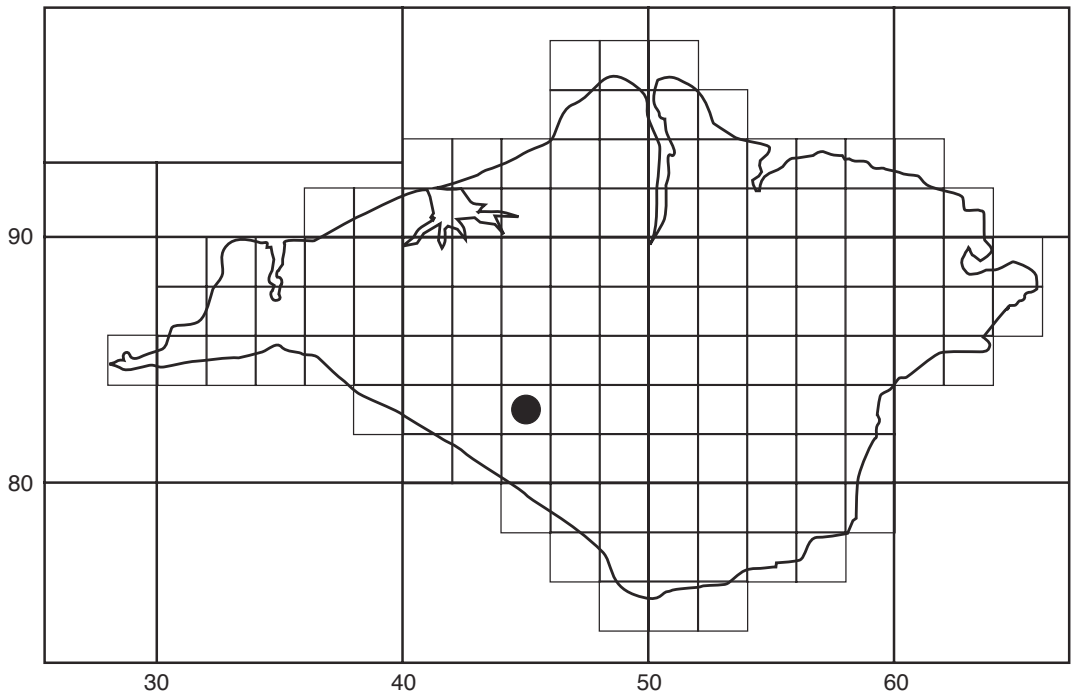
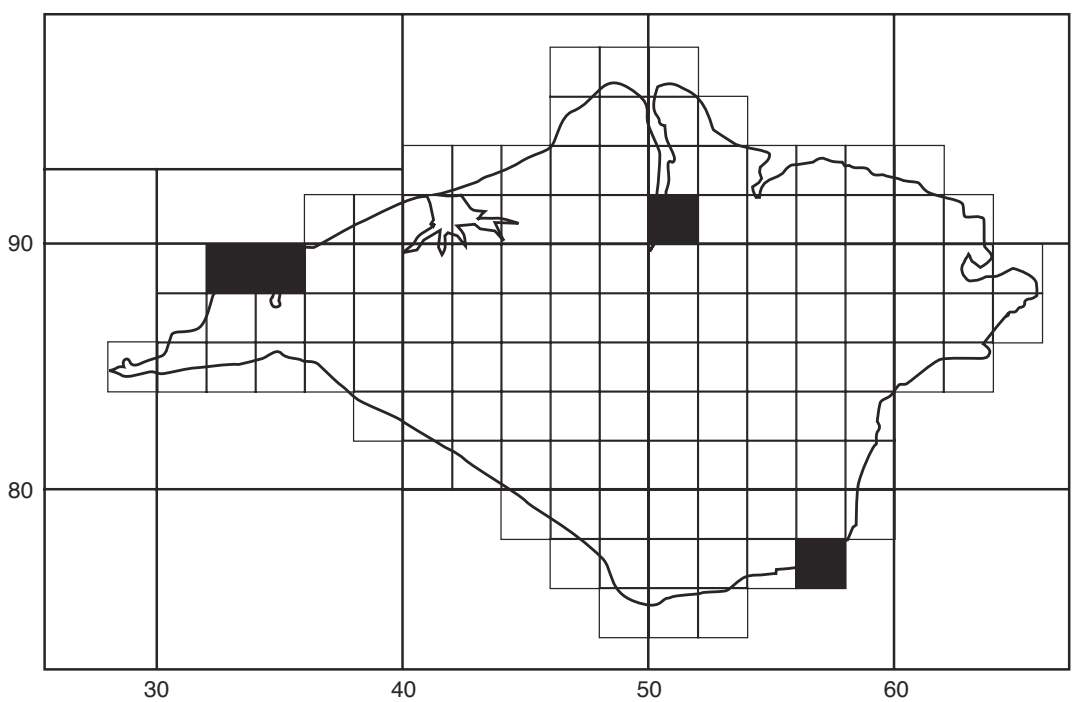
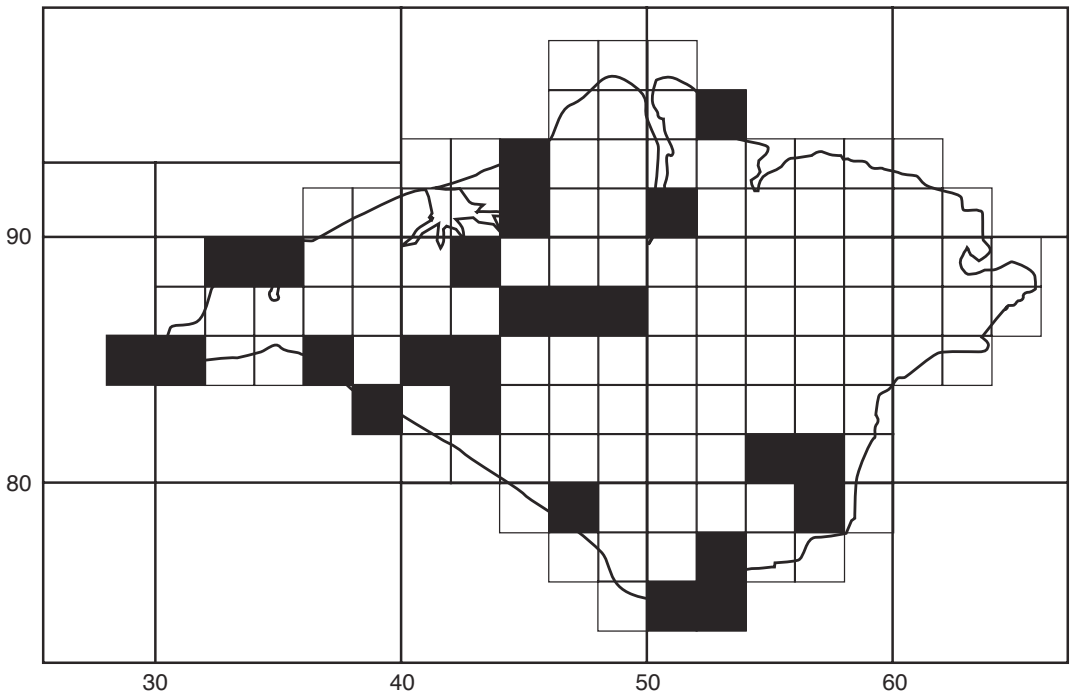


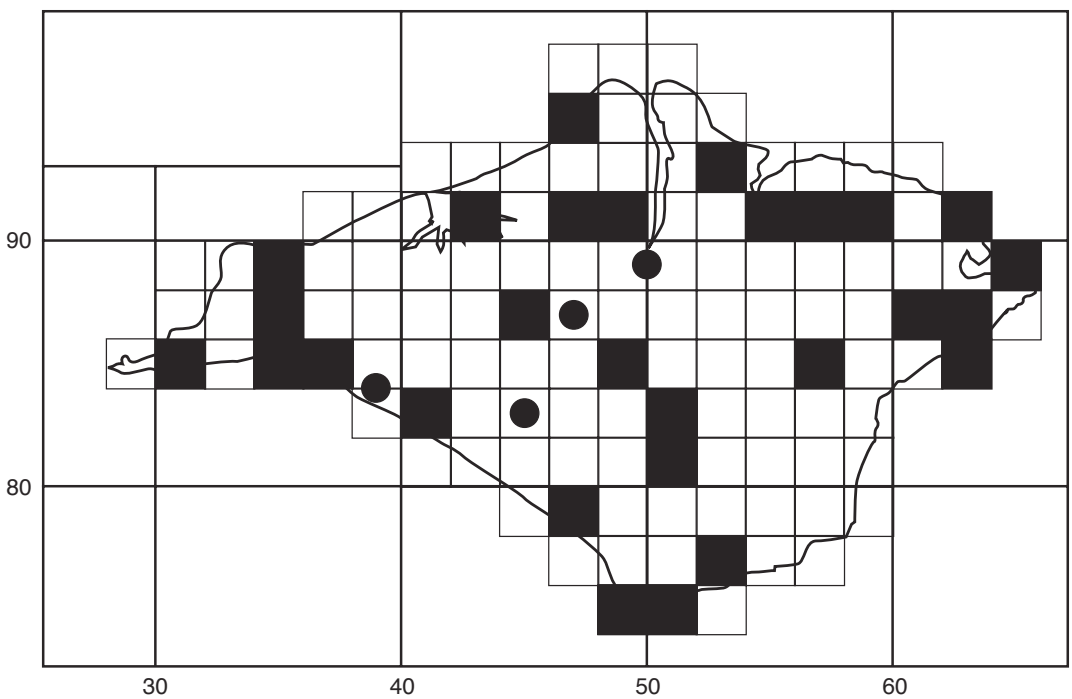
Isocolus jaceae



Liposthenus latreillei



Diastrophus rubi



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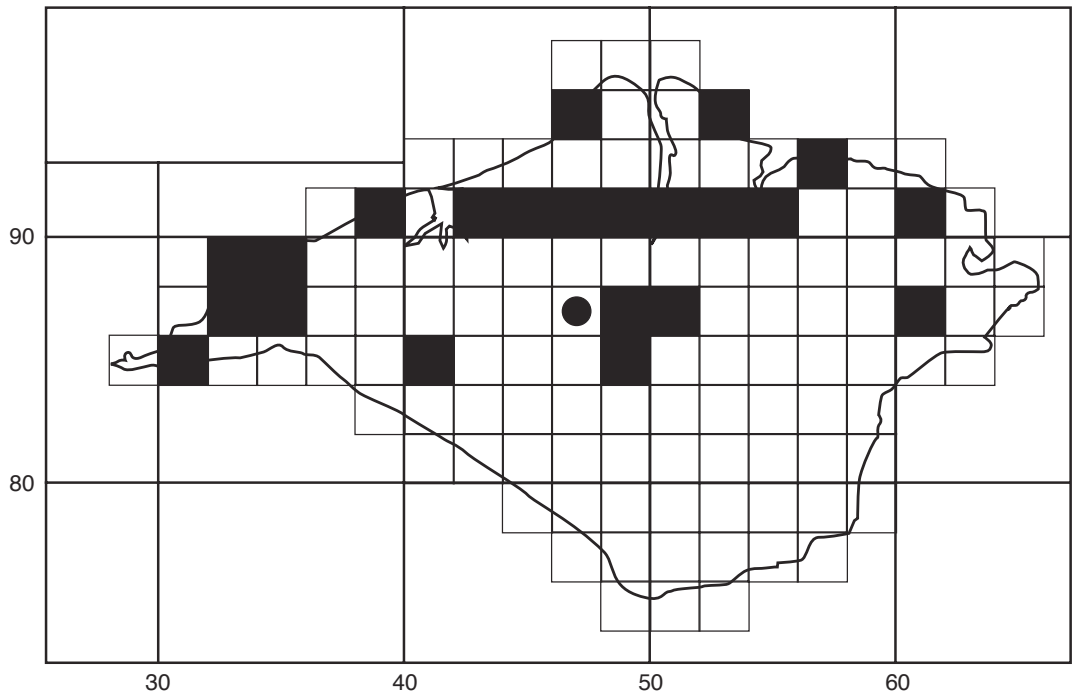

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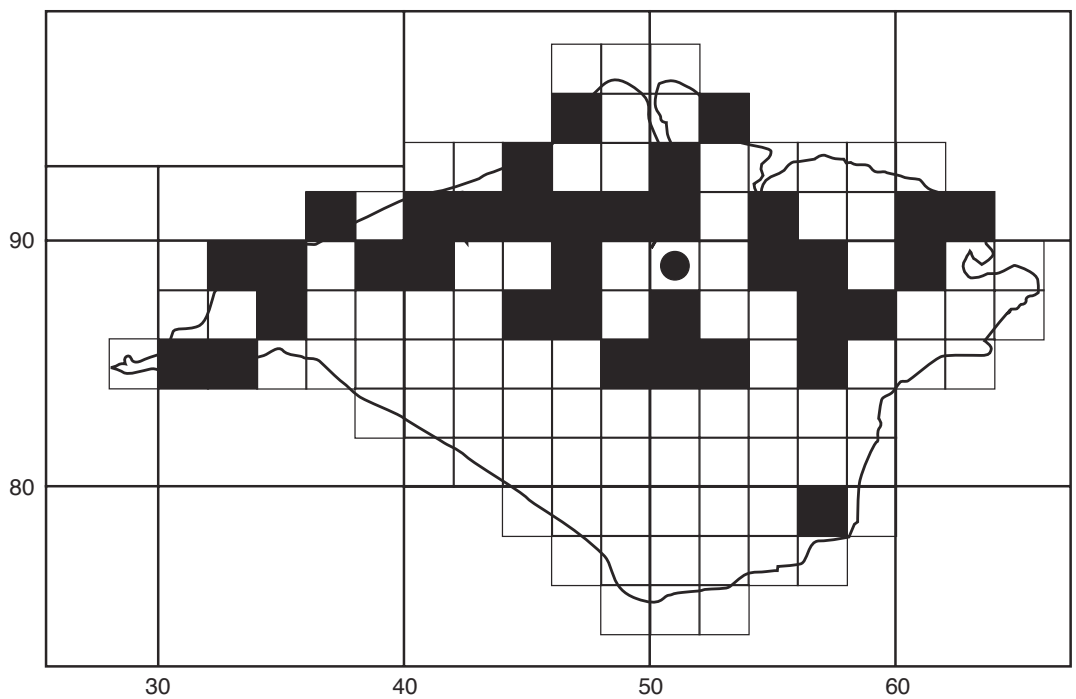

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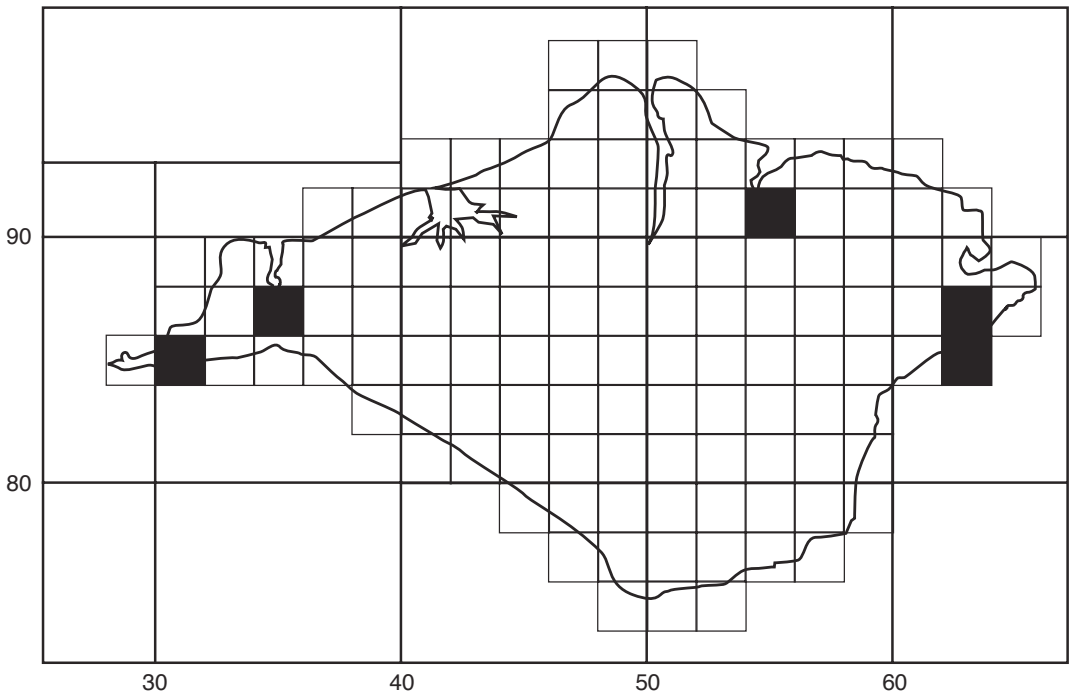

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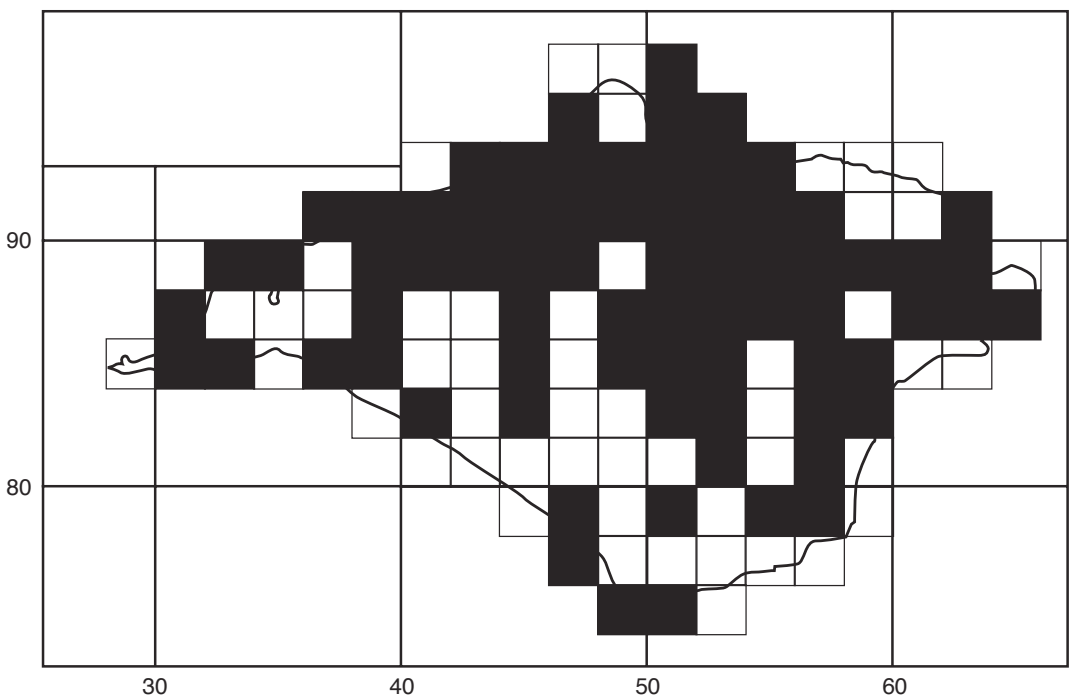
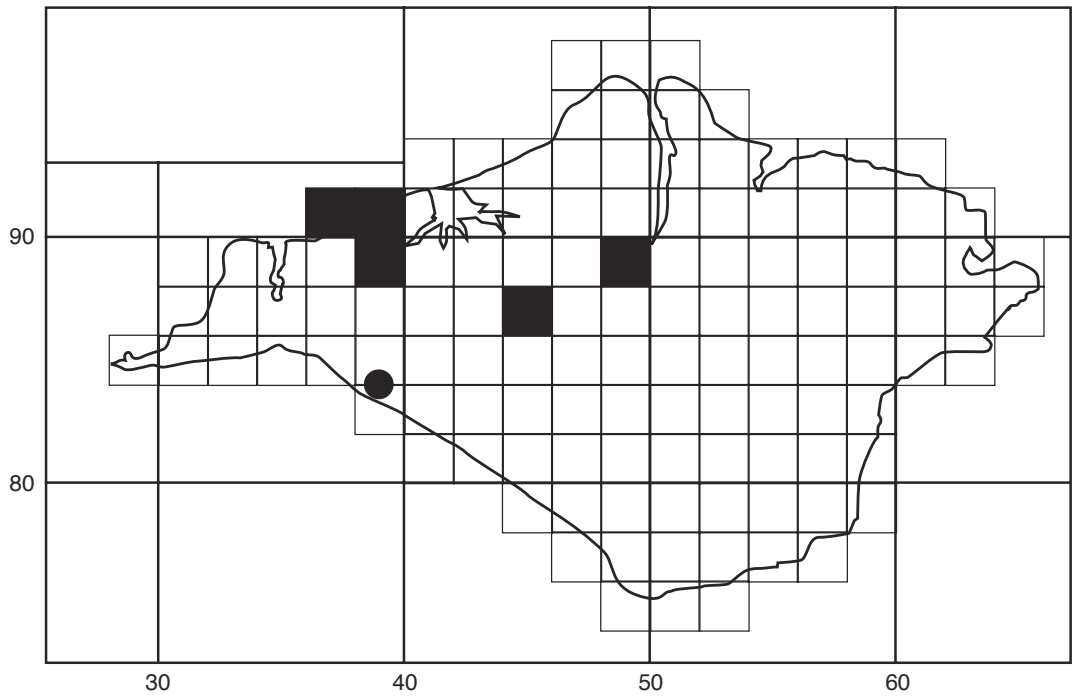
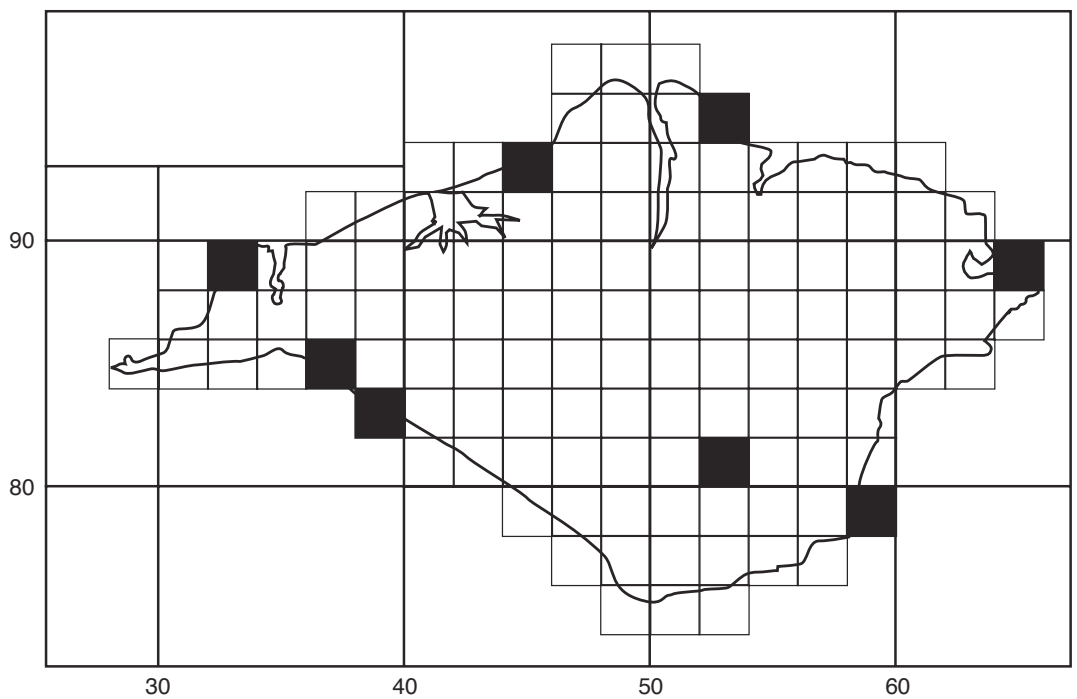


Dipluleps spinosissimae



Phanacis hypochaeridis



Proc. Isle of Wight nat. Hist. Archaeol. Soc **15** (pub 1999): 39 - 40

LEAF MINING ORGANISMS NOT PREVIOUSLY RECORDED IN THE ISLE OF WIGHT.

D.T. Biggs

Diptera.
Agromyzidae**.**
Agromyza graminicola Hendel, 1931
This fly mines common reed, *Phragmites communis*. J.Cole reported that he had swept one at Whale Chine SZ469783 2.7.80. This is the first record of this fly from Britain. The larva freeds first towards the apex of the leaf, then turns and forms a broad channel downwards. Pupation is internal. The insect has only previously been reported from E.Europe.

Cerodontha suturalis Hendel, 1931
I found mines of this fly on pendulous sedge, *Carex pendula* in Parkhurst Forest SZ475914 on 26.11.97 and at Osborne SZ5295 20.12.97. The mines run down-up-down producing what looks like a very broad corridor, half the width of the leaf. The frass lies in two large clumps. The pupa is stout with rounded sides. Reported to be locally common.

Liriomyza bryoniae (Kaltenbach, 1858)
Brian Warne sent me some leaves of cucumber, *Cucumnis sativus* mined by this fly from the glasshouses at Mackett's Lane, Bathingbourne. The mine is a short, irregular corridor on the upper surface of the leaf , shallow, whitish-green with branches at one end. The frass lies in streaks. In Europe it is widespread in botanical gardens and in glasshouse cultivation where it is a serious pest on tomatoes. It is also known on melons and lettuce.

Anthomyiidae.
Pegomya hyoscyami (Panzer, 1809)
Sea beet, *Beta vulgaris maritima* at Foreland SZ6587 was the host for this leaf miner, found by Brian Warne 20.9.98. The mine is a full-depth blotch formed by three larvae mining communally and producing washy-green frass which lies irregularly in the mine. This fly is polyphagous on many plants in the Chenopodiaceae.

Hymenoptera
Tenthredinidae
Fenella nigrita Westwood, 1840
I found one leaf of meadowsweet, *Filipendula ulmaria* at Ashey SZ576890 mined by this sawfly. It produces a full-depth corridor-blotch which starts near the base of a lobe. Three adjoining lobes each had its own mine. This insect is reported to be probably widespread and locally common.

Heterarthrus microcephalus (Klug, 1814)
A leaf of grey willow, *Salix cinerea* found by Brian Warne 1.10.98 in Firestone Copse SZ5596 exhibited a full-depth blotch containing a larva of this species which ejects much of the frass from its mine. When fully fed the larva spins a round flat cocoon attached to the side of the mine inside the leaf which is usually dark brown in colour and in which pupation occurs. This sawfly is reported to be common and generally distributed.

Reference
Cole, J.,1998 *Ent.Mon.Mag*. 1998, **134** : 84.

Author : D. T. Biggs, Plum Tree Cottage, 76 Albert Road, Gurnard, Cowes, Isle of Wight PO31 8JU

Proc. Isle of Wight nat. Hist. Archaeol. Soc **15** (pub 1999): 41 - 50

THE NATURAL HISTORY OF THE GLANVILLE FRITILLARY (Melitaea cinxia L.) BUTTERFLY.

Colin Pope

Adapted from a chapter originally written for a book on butterflies of Hampshire and the Isle of Wight by Matthew Oates and Colin Pope which was not published.
This article is commemorated to Connie Pelham, who had a great love of butterflies and moths on the Isle of Wight and was especially interested in the Glanville fritillary and its conservation.

Introduction

The Glanville Fritillary (*Melitaea cinxia* L.) is affectionately thought of by many, including those with little interest in insects, as the Island's own butterfly. This engaging butterfly is to be found amongst some of the Island's most splendid and distinctive scenery. In good years, favoured stretches of coastline come alive with it. There is nothing more delightful than to settle down in a sheltered spot amongst a profusion of flowers, with the sunlight sparkling on the sea and watch the fritillaries flying gracefully, closely hugging the contours of the ground or settling amongst the clumps of flowers. Thrift, Kidney Vetch and Bird's-foot-trefoil are their preferred blooms.

The Glanville Fritillary was adopted as the emblem of the Isle of Wight Natural History & Archaeological Society in its Jubilee year in 1969 and it has been used on their literature ever since. It also features in a stained glass window in the north transept of the chapel at Bembridge School (*Fig. 1*). The window was made in 1984 by Carl Edwards in commemoration of a past pupil and features Bembridge Windmill and a border with two of the butterflies. Bembridge School had a further, and earlier association with the insect for another past pupil was the famous entomologist L. Hugh Newman, for many years the resident butterfly expert on BBC Radio's Nature Parliament. In his richly illustrated book, *Butterfly Haunts* (1948), he describes how in the 1920's, 'the windows of my school dormitory at Bembridge overlooked Culver Cliff, a haunt of this extremely local butterfly. Both as a boy and in later years I have watched the light brown speckled butterflies chasing each other up and down the steep cliffs'.

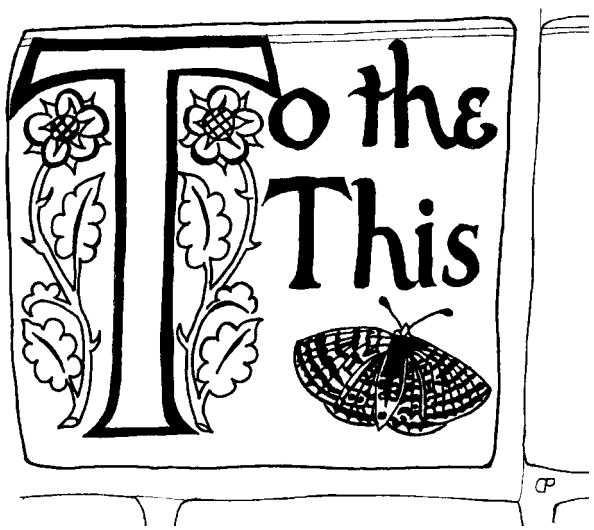


Figure 1. A portion of the stained glass window in Bembridge Chapel, showing Glanville Fritillary.

Historic distribution

The Glanville Fritillary was originally discovered in Lincolnshire and at one time, to judge from early entomological records, it seems to have been moderately widespread over much of southeastern England. However, by the mid Nineteenth Century it seems to have retreated to the Isle of Wight and the Sandwich Bay area of Kent, from where it was last recorded about 1863 (South, 1906). There is also some evidence to suggest that it may have occurred in parts of Hampshire in the last century.

The first record from the Island comes from an unrelated Newman, Edward, early in the last century. He came across the insect in 1824 and 'in company with my friends, George Waring of Bristol, and Waring Kidd of Godalming discovered the now celebrated locality at the Undercliff, Isle of Wight; we found the caterpillars, chrysalids, and butterflies equally abundant at the same time'. The Undercliff he was referring to was the area of slipped cliffs in Sandown Bay. The account was published in *Loudon's Magazine of Natural History* and it stimulated many entomologists to visit the Island.

A few years later, Stephens writing in *Illustrations of British Entomology* (1827) says, 'recently the places where it has been chiefly observed have been near Ryde and the Sandrock Hotel, the latter place in plenty'. The Sandrock Hotel was a popular Victorian inn and hotel near St Catherine's Point and this is the first reference to a site in the true Undercliff, later to become a mecca for the collectors. Successive entomologists of the last century listed other sites: 'plentifully in Sandown Bay and in the whole range of the Undercliff' (More 1860); Ashey; Whippingham; Carisbrooke Castle; Blackgang Chine; Brook Chine; and Freshwater. James Pristo reported it to be 'plentiful on the chalk, also occurs on the tertiaries'. A picture emerges of a butterfly which was widespread around the southern coasts of the Island and also occurred in many favoured inland sites.

Around the turn of the century, the picture had changed. Hubert Poole (1909) wrote, 'The Sandown locality, so well described in Newman's Butterflies is completely wiped out, and many other spots where it was formerly abundant now fail to yield specimens. At present it is only found in one or two restricted spots in the Undercliff'.'

By the 1920's, the fortunes of the butterfly had improved considerably, so that Poole (1922) was able to write in 1921, 'has increased considerably since the publication of my original notes. Many new localities have been formed and old ones re-established by taking larvae from the Undercliff and liberating them elsewhere. Probably also favourable seasons have helped it to increase naturally, and the War period, being unfavourable for the entomologist, gave the species a chance to recover lost ground.' It was around this time that the school boy, L. Hugh Newman was watching the butterfly at Culver Cliff and Whitecliff Bay, sites where it no longer occurs today.

The 1940's were also good years and many inland colonies were established all over the Island. Poole again (1945) found it to be abundant on Brading Down 'and probably all along this ridge of downs'. Other inland sites occupied at this time included the disused brickyard at Rookley, the railway embankments at Wroxall and between Newport and Cowes, a field outside West Cowes, another near Whippingham Church and at East Cowes Castle. The late Oliver Frazer remembered that after the Second War it was abundant, even breeding alongside The Cascade in Ventnor.

The Undercliff stronghold

The Undercliff between Bonchurch and St Catherine's Point was probably the most famous home of the Glanville Fritillary. It has been known from here for more than 160 years and was once widespread both along the coast and throughout the landslipped hinterland, extending onto the southern slopes of St Boniface Down at Ventnor. During one of its population crashes around the turn of the century, it apparently retreated to a few small populations in favoured spots of the Undercliff.

During this century, it has suffered a dramatic decline. It no longer ranges throughout the Undercliff but has become confined to a few, small, scattered colonies by the cliff edge between Bonchurch and

St Catherine's and a few spots on the steep, inaccessible face of the inland cliff. The principal reason for this decline has been habitat change. Most of the coastal grasslands are either heavily grazed or have become invaded by dense scrub. I remember seeing the butterfly at Binnel Bay in the early 60's when there was a narrow strip of coastal grassland still remaining. The butterfly had been pushed to the very edge of the land by invading scrub. Today the scrub has completely taken over; the butterfly has gone and so too have some of the other specialities of this habitat.

There has been considerable tree planting and housing development within the Undercliff and this must have destroyed other suitable sites. The south face of St Boniface Down is now dark and shady beneath a canopy of Holm Oak. From what was once the British stronghold of the species, there are few spots left in the Undercliff today which the Glanville Fritillary can call home.

Modern distribution

Newman's original site at Sandown Bay survives today, although reduced in size. According to Poole (1909), it had been all but lost from here at the start of the century but it was back by the 1920's. There were probably other nearby colonies which could provide a focus for recolonisation but that is no longer the case. The colony today is highly vulnerable by nature of its isolation. If it were to disappear, it is highly unlikely to be recolonised naturally. The butterfly survives at low numbers but there are several areas of apparently suitable habitat with abundant foodplant which are not being utilised.

Elsewhere on the coast, it remains well distributed along the southwest coastline from St Catherine's Point to Compton Bay. The Compton Bay site is the most well known and strongest colony but there are others scattered along the cliff edge, and in the chines and undercliffs where suitable habitat and an abundance of foodplant occur. The butterfly is quite mobile so that there is some movement from one colony to another, particularly in an easterly direction. Some colonies are small and transitory but there are about five larger permanent colonies which can each hold some 500 butterflies in a good year. It is now believed that the Glanville Fritillary is an example of a species showing a classic metapopulation structure (Hanski *et al*, 1994) whereby a few large colonies act as a source for colonisation of new sites in good years and a sink for the continued survival of the species in poor years. Long term observation of sites by members of the Natural History Society has shown that in poor years, even within sink sites, populations withdraw to a few microclimatically favoured features within a site such as the south facing edge of rain-shedding poorly vegetated ridges. For this reason, the continued survival of all five sink populations is essential for the long-term conservation of the butterfly.

Inland colonies

There has been a history of the butterfly colonising sites inland from the southern coastline. Such sites appear to have been scattered and transitory. Where the habitat is indicated, the chosen sites tend to suggest sloping, sunny ground with a warm microclimate and somewhat stressed vegetation. The soil type appears to be immaterial. Such conditions are met with on the southern slopes of the downs, on steep chalky banks, south or west facing railway embankments, open heathy grassland, disused quarries and stabilised coastal shingle ridges. In the past, it would seem that such sites were quite widely used by the Glanville Fritillary in good years.

Fearnehough (1972) suggested that many of these colonies were the result of introductions made by the release of surplus insects bred by entomologists. This may be true for some of the colonies, but the insect is capable of spreading inland unaided in favourable conditions.

Inland colonies are rather scarce today. There is a much smaller reserve of butterflies to colonise new areas and the extent of suitable, unimproved habitat is reduced. Nevertheless, they do still occur from time to time and, perhaps not surprisingly, these new colonies are all in the west of the Island, inland from the main extant coastal populations. Colonies are most frequently reported from the southern face of the central chalk ridge stretching from Afton Down through to Brighstone Down. In

1980, Dorothy Frazer was called to advise upon large numbers of larvae which had 'invaded' the grounds of Wilberforce Village Hall in Brighstone. Other inland sites have been recorded in the last fifteen years and these include Afton Down, Shalcombe Chalk Pit, Rowborough Down, Cranmore and Thorness Bay.

Mottistone Down has frequently held a few larval webs and it currently holds the most secure inland population, breeding amongst swiped Gorse and Bramble on the gravel capping of the down. This site was found by Tony Tutton, who believes it was first colonised in 1989. It is being actively managed by the National Trust to conserve the species.

Population fluctuations

The Glanville Fritillary is well known to experience periodic fluctuations in numbers. Changes from one year to the next can be quite dramatic. 1979 was considered to be a good year, although nothing like the good years of the past. The following year there was a considerable decline, the extent varying from one colony to another (Thomas and Simcox, 1982). Numbers based on spring larval counts were generally low in 1983, but considerably higher in 1984 and 1985. 1986 was generally poor, with a steady improvement in 1987, 1988, 1989 and 1990, when spring larval counts were particularly high. 1997 was a good year in some sites. These year by year fluctuations are probably very typical. Not al colonies behave similarly but even in poor years, some butterflies can generally be found at all sites. Weather and the availability of suitable habitat and foodplant are probably the controlling factors. There have been exceptionally good years earlier this century in the early 1920's and 1940's (Poole 1921, Fletcher 1944).

In addition, the insect suffers from occasional and catastrophic population crashes when it apparently disappears from many sites and retracts to a few particularly favoured spots where it survives in diminished numbers. Rev. J.W. Dawson writing in Newman's Butterflies (1870-71) refers to 1844 when 'this fritillary was much less plentiful....than heretofore; and in some of its former haunts has quite disappeared'. Another crash was reported by Poole in 1909, who said that 'the Sandown locality, so well described in Newman's Butterflies is completely wiped out, and many other spots where it was formerly abundant now fail to yield specimens.' In 1972, Fearnehough reported that 'the species has retracted again, and all the inland colonies and many of the coastal ones have disappeared'.

In the summer of 1989, the butterfly was in good shape. 1990 was a particularly good year at many sites but Matthew Oates reported poor numbers of adults at Compton and numbers were below average at Brook. This was despite high larval counts in the spring. By the following year, all the coastal sites had experienced catastrophic declines and this trend was continued into 1992 such that no spring larval webs were located at some of the classic sites where over 50 could easily have been found two years previous. Even the Compton stronghold held extremely low numbers. 1992 was the poorest year for the species in the fifteen years of monitoring by members of the Society but at all sites, numbers had recovered well within two years (*Fig. 2*). This ability to rapidly build up numbers when conditions are favourable is a characteristic of many insect species and is easily forgotten when alarm bells are sounded over the demise of a species.

The cause of these catastrophes is less certain. When larval numbers are high, the caterpillars have a habit of eating out all the immediately available food plant and many die. This undoubtedly has a local effect but generally there is no shortage of suitable plants. However, a predator/prey relationship is certainly implicated. Richard Ford (pers. comm.) believed that Hymenopterous parasitoids take a heavy toll of the larvae. He also (1973) recorded a fungus disease which killed numbers of larvae in the dry spring of 1970. R.W.Watson (pers. comm.) believed that a polyhedron virus was responsible for controlling numbers. The Hymenopterous parasite of Richard Ford was confirmed when, in 1996, Barry Angell sent off parasitised larvae to Mark Shaw at the Royal Museum of Scotland (Edinburgh), for identification. He identified them as *Cotesia* (=*Apanteles*) *melitaearum* (Wilkinson), which he

describes as a well-known parasitoid of the *Melitaea*/*Euphydras* range of genera, and a regular of Glanville Fritillary on the Island. It is a member of the Braconidae, closely related to ichneumon flies.

Cotesia melitaerum has a rather interesting life history. The host larva carries it through the winter as a first instar larva inside of the host, and between one and four parasitoid cocoons appear very soon after the host larva comes out of hibernation in the spring. The adult parasitoids emerge from these cocoons and proceed to lay eggs into healthy fritillary larvae producing large broods (between 15 and 50 individuals) that finally kill the host larvae in the final instar. The resulting adults then oviposit into the next generation of very young host larvae in late summer. In favourable years, they can bring off another brood before overwintering occurs. So the parasitoid can have two or three generations per host generation and consequently rapidly build up high numbers leading to localised population crashes for the butterfly.

On the Island, the butterfly has a number of stations and can withstand local extinctions provided at other sites it can recover and subsequently recolonise its old sites. On the mainland, where historic sites tended to be well scattered, this would not have been the case and may in part explain why they have died out.

The precarious life of the larvae

The female lays her eggs in batches on the undersides of leaves of Ribwort Plantain (*Plantago lanceolata*). She selects small, young plants in open, sunny ground where the microclimate is most favourable. South (1906) confused the issue when he wrote that Sea Plantain (*P.maritima*) was the favoured foodplant, and this has been repeated time and time again in butterfly books. Maybe the small, young Ribwort Plantain plants which support the caterpillars were misidentified. Sea Plantain is a plant of the Solent coastline of the Island, where the Glanville Fritillary does not occur. It has been recorded very rarely from two of the breeding sites of the Glanville Fritillary on the southern coast, but would not normally be available to the larvae. In situations where Ribwort Plantain is in short supply or all the available plants have been stripped of their leaves in the spring, some caterpillars will feed upon Buck's-horn Plantain (*P.coronopus*) but this is very much a poor second choice used only by final instar larvae.

The caterpillars emerge from hibernation in mid-March, or as early as mid-February in mild springs, and spin a conspicuous silken web and feed communally. This spring feeding is critical, with 95% of the body weight developing at this time. The larvae suffer in cold springs when the plantain plants have not started into growth or have had their young leaves burnt off by salty winds. An additional hazard is strong winds which can blow larvae off the cliffs and onto the beach below. The aggregation of dark coloured larvae within the web in sheltered sites maximises the microclimatic benefits. It is known that the temperature within the larval web can be higher than that of the immediate surrounding and Roger Herbert was able to demonstrate a daytime temperature which was one or two degrees higher within a larval web at Brook Chine (pers. comm.). This is critical to speed development of the larvae and the requirements for a continuous supply of young plantain plants and a warm microclimate are probably significant limiting factors in the species distribution.

The larvae are black with spiny body hairs and a rusty-red head. As they grow, they become extremely conspicuous and this is a good time to survey their sites just before they disperse from the webs, a technique developed by Thomas & Simcox (1982) and continued by members of the Isle of Wight Natural History & Archaeological Society. This survey has been carried out annually since 1983 at up to 23 sites or subsites (*Fig 2*).

The information generated from this study carried out regularly by a small loyal band of surveyors has given us a unique and detailed perspective and understanding of the long term changes to the butterfly and its sites at all the main breeding locations. An illustrated account of the early survey years will be found under Pope (1987).

Full grown larvae measure about 25mm by late April and begin to disperse. At this time, they are often noted by members of the public, crossing the coastal footpaths and this sometimes gives rise to reports of swarms of caterpillars. Perhaps it is fortunate that this event does not occur in mid summer, when very many would be trampled. Simcox & Thomas (1980) investigated the effect of trampling upon the larval nests. They found that they were rarely hit during normal walking and when they were deliberately crushed (!), only a very small proportion of larvae were killed. Their reaction is to roll into a ball where they fall into the surrounding vegetation.

The glut of caterpillars in good years would seem to provide a food source for a variety of species. The Rev. Dawson, writing in Newman (1870-71) maintained that two species of burying beetles (*Silpha* spp.) were predators. R.W.Watson was of the opinion that newly arrived cuckoos were major predators. Other observers have also seen cuckoos on the cliffs feeding on the larvae.

Roger Herbert watched a Meadow Pipit take an adult to its nest near the coastguard cottages on the Needles headland on 2nd June 1989. Rev. Dawson held that the butterflies were taken by large ground spiders. 'It lies in wait till the butterfly alights on the low plants, or on the ground, then rushing forward, seizes it by the neck, and holds it captive with such tenacity, that both insects may almost be pulled in pieces ere it will retain its grip.'

Times of Emergence

The butterfly is normally on the wing in late May, usually by 20th, and throughout June, but emergence depends upon the onset of spring. When a warm spring follows a mild winter, larvae emerge early from hibernation and the first adults are flying in early May, eg. 3rd May near Freshwater in 1990 and 5th May at several Undercliff sites in 1995. In 1997, Andy Butler saw the first butterflies at the end of April at Wheelers Bay. In such years, those larvae in particularly sheltered microhabitats are the first to emerge whilst other webs can be several weeks behind. In early years such as 1990, the season has almost finished by the end of May whilst in late years, such as 1991 and 1996, it can start and finish a good three weeks later.

The peak is usually in late May and early June. The butterfly shows a protracted emergence over several weeks and it is not unusual, early in the season, to find both adults and larvae together. Generally, the last few butterflies can be expected in the first week to ten days of July but occasionally individuals are found later. Several were on the wing in a chalk-pit at Upper Ventnor during the first week of August (Lobb,1954); I saw one at Gore Cliff on 21st July 1985 and David Biggs reported one from the foot of West High Down in late August 1987.

These occasional occurrences have led to suggestions that in good years the butterfly has a partial second brood. Certainly it is double brooded on the Continent. The regular occurrence of larvae throughout May and sometimes into June suggests that these may in fact be late emergers. Paul Waring found a web of larvae in a heath grassland site at Cranmore in mid June, an extremely late date but this is a sub-optimal habitat for the insect. The long, hot summer of 1989 should have been ideal for a second brood but no late individuals were reported. Admittedly, this was at a time when the population was about to crash. In the mild and unpredictable climate of the southern coast of the Island, perhaps individuals take advantage of the prevailing microclimatic conditions. Reports of a full-grown larva from St Catherine's on 3rd November crossing the road and another on 7th March the following year (Audrey Wilkinson) tend to support this hypothesis.

The collectors

Since Edward Newnam's discovery of the Glanville Fritillary last century, the Island has been a place of pilgrimage for butterfly enthusiasts. The Undercliff region and, more recently, Compton Bay, have been the principal targets for the activities of collectors, for these were places where large numbers could be obtained relatively easily. Huge quantities of near full-grown larvae must have been gathered from these cliffs in spring to satisfy the urges

of butterfly collectors keen to rear an occasional aberration, or for breeding stock. The local entomologist John Lobb records that in 1954 he was sent a package containing several thousand small larvae, late in the season, to return to the wild. 'These were most kindly sent by Dr C.A.Clark, of Cheshire, who paid a visit to the colony in 1952, and took about two dozen larvae back with him for breeding'. Other collectors also visited the Island, and still do so, but their surplus insects are probably released in their home areas where they sometimes give rise to short-lived colonies. One of the most determined and enthusiastic of these was the late R.W.Watson who visited the Island annually for this purpose between 1945 and 1981. He claimed (pers. comm.) to have an 80% success rate in rearing the spring larvae but that aberrations were extremely rare, most years producing none. The surplus adults, amounting to several hundred each year, were generally returned to sites on the Island but sometimes he released them on the mainland. In June 1945, Watson and his friend F.S. Reeves released approximately 100 adults along 2.4km of railway embankment between Holmsley and Brockenhurst in the New Forest. They established a colony which flourished until 1967 when the line was removed and a new road built. There have been other releases elsewhere at different times but, to date, this is the longest lasting deliberate introduction of the species in this country.

A breeding population has become established on Hordle Cliffs, east of Barton on Sea, where it was first reported in 1991 in habitat very similar to the Island's south coast sites. The origin of this population is unknown and may have been the result of a deliberate introduction. However, there has been a history of short-lived colonies on this stretch of coastline and this is considered most likely to be the result of occasional natural colonisation from the Island. If so, it is conceivable that the present colony arose from dispersing individuals in 1989 or 1990 when early summer weather was particularly favourable and butterfly numbers were high.

The majority of extant sites are on National Trust land where collecting adults or larvae is an illegal activity. It can also be highly damaging, particularly at times when the population is at a low ebb. This was the case in 1992 when collectors were seen on the cliffs at Compton. In poor years, the great majority of larvae may be collected from a site and it is highly unlikely that the adults are returned.

Aberrations are hardly ever reported in the wild, but in 1991 a very distinctive individual was seen and photographed at a Bonchurch garden, feeding on Red Valerian flowers with two normal individuals (*Fig. 3*). The butterfly seen by Ray Porter showed a considerable reduction in the black markings on the central area of the upper side forewings and the central area of the underside hindwings. There was also heavy black spotting on the basal area of the underside hindwings. This distinctive female appears to be referable to ab. *wittei.*

The future for the butterfly

The Glanville Fritillary is listed on Schedule 5 of the 1981 Wildlife & Countryside Act, prohibiting its commercial sale. The majority of its breeding sites, being on National Trust land, are relatively secure and coastal erosion provides the most effective habitat management tool. In some winters, cliff slippage is so severe that many hibernating webs of larvae end up on the shore, lapped by the tide. If however the cliffs become too stable, the vegetation changes and the bare areas into which the Plantain seeds itself disappear. Overall, there tends to be a balance of good and poor years which enables the populations to survive.

Visitor pressure may cause problems in the future. Heavy trampling alters the vegetation so that it no longer becomes suitable for the foodplant in the right condition, or for the nectaring plants. Some colonies are very close to holiday camps and as the camps expand, the natural cliff vegetation suffers. Several colonies have been lost in this way in the past. It may become necessary in the future to rope off certain areas of cliff from the public in the interests of the butterfly, but currently this does not seem to be necessary.

At present, the butterfly graces many stretches of the Island's coastline. It is one of our most conspicuous butterflies, so that in good years at the right season it can hardly fail to be seen and enjoyed. Long may this situation continue.

Acknowledgements

First and foremost, thanks are due to recorders who, over the past fifteen years have faithfully monitored the larval numbers at sites across the Island. Those involved over this period of time have been: Frank, Vicky and David Basford; David Biggs; Andy and Enid Butler; Jim Cheverton; John and Mary Cull; Robin Curtis; Paul Davies; Beth Dollery; Ron Edmonds; Oliver and Dorothy Frazer; Dorne Grove-Smith; Frank and Maretta Heap; Roger Herbert; Frank and Muriel Lee; Connie Pelham; Colin and Jillie Pope; Tony Tutton; and Audrey Wilkinson. Tony Steele has also regularly reported observations. I am grateful to Matthew Oates for comments on the original draft and his encouragement to see it in print.

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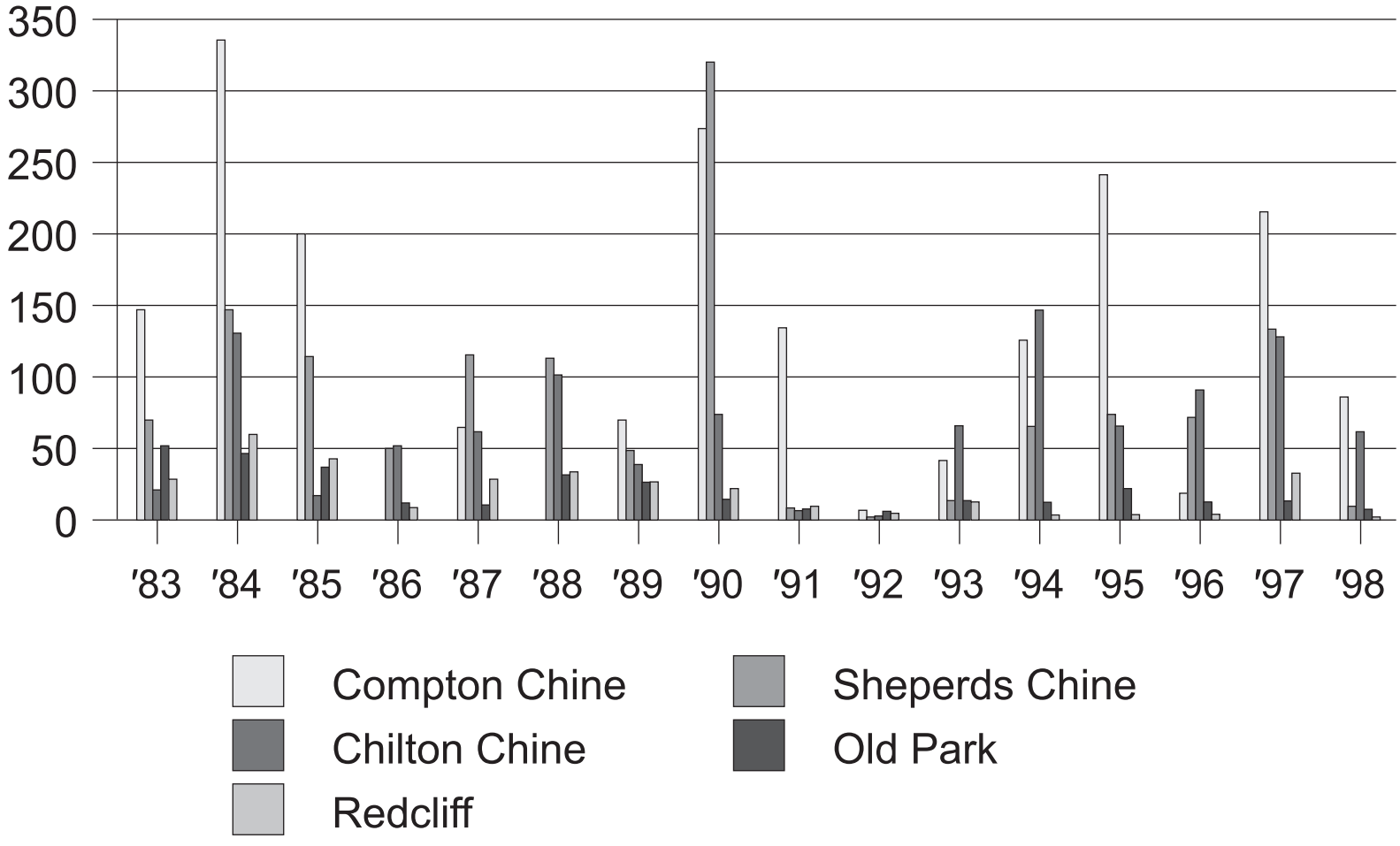

Figure 2. Graph showing fluctuations in spring web counts at several site, 1983 - 1998

Figure 3. Glanville Fritillary *ab. wittei* on Red Valerian at Bonchurch. (Rey Porter)

Proc. Isle of Wight nat. Hist. Archaeol. Soc **15** (pub 1999): 51

SEARCHING FOR LARVAE OF VARIOUS PUG MOTH SPECIES

Brian Warne

In early 1998, a book entitled *The Colour Identification Guide to the Caterpillars of the British Isles* by Jim Porter was published. It contained all the information needed to find the larvae of all the moth species, such as illustrations, food plant and the time of year when active. I decided that this would give an opportunity to discover what species of pug moth were present on the Island.

Pug moths belong to a large family of moths, the majority of which are small and grey and resemble one another very closely. They are the equivalent of the ornithologists "s.b.j.'s"!

The first species sought was the Sloe Pug (*Chloroclystis chloerata*) which only feeds on the blossoms of blackthorn (*Prunus spinosa*). A Society meeting on St Helen's Duver failed to find it, but I searched Knighton Down and Brading Down. Two larvae were found on Knighton Down on 12th April and one on Brading Down on 18th April. Two of these pupated and one imago emerged on 2nd May. This was the first Isle of Wight record.

The second species looked for was the Maple Pug (*Eupithecia inturbata*), which was thought to be fairly common. A large ancient field maple (*Acer campestre*) at Upton, near Ryde, was beaten. This proved to be unsuitable as it was smothered in honeydew from the many aphids feeding on the foliage. Three larger larvae were obtained which, on emergence from pupation, were found to be the Dun-bar (*Cosmia trapezina*).

The next pug larva to be sought was the Channel Island Pug (*Eupithesia ultimaria*), a recent colonist of the British Isles discovered for the first time on the Isle of Wight in 1987. In late July, tamarisk bushes (*Tamarix* spp.) at Bembridge, Ryde Canoe Lake, Gurnard and around Freshwater Bay carpark were beaten but nothing was found. On 4th September, one larva was found at Bembridge, where it had been seen in 1987, and two at Ryde Canoe Lake, a new site. The latter site was revisited on 22nd September and one fully grown larva was found. It is likely that we were too late in late July and that these few larvae were specimens from a partial second brood.

The final species looked for were the Ash Pug (*E. fraxinata*) and the Yarrow Pug (*E. millefoliata*). Sea buckthorn (*Hippophae rhamnoides*), a food plant of the Ash Pug, was beaten first on St Helen's Duver but nothing was found. Yarrow growing alongside the beach huts was then investigated. Porter (1998) advises sweeping the dead and dying seed heads vigorously. Using this technique, I managed to find three larvae of the Yarrow Pug. A few days later, I collected a bag of seed heads and took them home to search for larvae. By this method I found another nine larvae hidden in the middle of the seed heads. A few days later, I searched seed heads at Ashey old railway station and found a further three larvae. Another larva was found by the seawall near the "Crab and Lobster" Inn at Forelands. These moths will not emerge until spring 1999. The Yarrow Pug is considered to be nationally scarce.

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Proc. Isle of Wight nat. Hist. Archaeol. Soc **15** (pub 1999): 53 - 55

NOTABLE MOTHS RECORDED IN THE ISLE OF WIGHT DURING 1998, INCLUDING A PYRALID NEW TO BRITAIN

S.A.Knill-Jones

1998 will be remembered for a mild winter, a cold and wet spring, a dull and wet summer and a windy and wet autumn. Spring-like conditions occurred on 9th and 10th January with balmy, southerly winds giving Ryde the warmest January day since records began, with 15C recorded on 9th January. February will be remembered for many spring-like days, making it the second warmest on record. As March passed, another mild winter was recorded, with each month having much higher than average temperatures. It was a cool spring with snow flurries during a wet and wintry April. There was a hot spell in the middle of May which made us feel that summer had arrived, only to return to normality towards the end of the month. June was wet and dull but not quite the worst ever. Likewise, July was dull and wet. August was much warmer with about average rainfall and September was one of the warmest on record. October was another wet and windy month and the first frost arrived on 11th November. 1998 will be remembered for being one of the windiest on record.

The first moth of note was the micro *Agonopterix rotundella* (Doug.) which I took at Freshwater on 16th March. This was the first record for about fifty years, since Blair recorded it at Freshwater in 1951.

Brian Warne and Tony Redfern tried beating for the Sloe Pug, *Chloroclystis chloerata* (Mab.), on 12th and 18th April and successfully obtained two larvae from Knighton Down and one from Brading Down. The first moth emerged on 2nd May. This is the first time that this species has been recorded on the Island.

On 16th May, Brian Warne took the first Island record of the Varied Coronet, *Hadena compta* (D.&S.), at Binstead. Since 1948, when several specimens were found in southeast Kent, this species has spread rapidly throughout the southeastern quarter of England. It was first recorded in Hampshire at Oakley, near Basingstoke, in 1983 and since 1984, this moth has become commoner each year around Winchester. Larvae are to be found on Sweet Williams (*Dianthus barbatus*). On 19th May, Brian Warne also captured the third Island record of the nationally scarce Rosy Marbled, *Elaphria venustula* (Hb.) in his garden at Binstead. The following night he took the pyralid *Microthrix similella* (Zinck.). This local species was recently discovered to be resident at Parkhurst Forest. On 24th May, I captured the second Island record of the micro *Pleurota bicostella* (Clerck.) which is probably resident at Headon Warren.

On 30th June, Dave Wooldridge recorded and photographed the rare migrant, Blair's Mocha, *Cyclophora puppillaria* (Hb.) at The Causeway, Freshwater. This was the fourth record for the Island and the first since 1988.

On 1st July, I took the local Plain Wave, *Idaea straminata* (Borkh.), at Freshwater and on 9th July I recorded the nationally scarce Dotted Border Wave, *I. sylvestraria* (Hb.), which is the first record since 2nd August 1980 when Jim Cheverton noted it at Shanklin. On 14th July, James Halsey captured the nationally scarce Wormwood Shark, *Cucullia absinthii* (Linn.), at Bonchurch. This was the first record since 1858 when larvae were found at Bembridge. He thoroughly searched Wormwood (*Artemisia* sp.) plants for signs of the larvae near his home, but without success.

On 15th August, Dave Wooldridge noted the nationally scarce Oblique Striped, *Philalapteryx virgata* (Hufn.), at The Causeway, Freshwater, and again this was the first record in recent years. On 18th August, James Halsey took twenty-two examples of the Jersey Tiger, *Euplagia quadripunctaria* (Poda) in his moth trap at Bonchurch. This goes to prove that the species is now well established along the south coast of the Island. On 26th August, David Biggs found a larva of *Mompha nodicolella* (Fuchs.) in a galled seedpod of Rosebay Willowherb (*Epilobium angustifolium*) which emerged on

11th September. This micro-moth is both new to Hampshire and the Isle of Wight and was identified by John Langmaid.

On 1st and 6th September, I captured two Oak Processionary moths, *Thaumetopoea processionea* (Linn.). There have only been sixteen other records of this moth in Britain with the first at Mawnan Smith, Cornwall, on 19th August 1983. The larvae live gregariously on oak (*Quercus* spp.) and often cause considerable damage to the foliage. The hairs of the larvae are extremely irritant to sensitive skin.

This species is now considered to be a resident on Jersey in the Channel Islands. It is new to both Hampshire and the Isle of Wight.

On 4th October, I recorded the rare and beautiful migrant, a male Clifden Nonpareil, *Catocala fraxini* (Linn.), at Freshwater, and on 20th October I took the micro *Monopis crocicapitella* (Clem.) at the same locality. This is the first Island record since one was observed at Newport in 1931 (Wakely,1936-37).

On the night of 9th November, I captured in my mercury vapour moth trap in my garden at Freshwater a pyralid that was unfamiliar to me. I sent it to Barry Goater who quickly identified it as the South African species, *Herpetogramma licarsisalis* (Walker, 1859), which was new to Britain. On that night, there was a light southerly wind and the temperature did not fall below 9C. This moth is a widespread pest species of the Old World tropics. The first European record was made as recently as 1997 in the Algarve, Portugal. In 1988, the species was found in great abundance in several places in southern Spain and Portugal (MFV Corley, in press). A detailed account of its description and distribution will be published in the *Entomologists Gazette*.

December was a very mild and wet month with a few dry and cold snaps. On December 13th Brian Warne took the Common Quaker (Orthosia cerasi)(Fabr.) at light at Binstead. This species usually emerges in spring and this is an exceptionally early example being about three months too early. On December 20th a beautiful example of the rare migrant, the Golden Twin-spot (Chrysodeixis chalcites (Esp.)) emerged from its pupa. I found the half grown larve on Spanish celery that I had bought from the local Somerfields at freshwater on November 19th. It fed up quickly on nettle and pupated on December 7th and was only in this stage for thirteen days. I found a full grown larva of the Scarce Bordered Straw (Heliothis armigera (Hub.)) in a Spanish pepper also at the same shop which soon pupated and will probably emerge early in the new year. On December 21st I found a well marked Pearly Underwing (Peridroma saucia (Hb.)) which had been attracted to an outside electric light at the Freshwater Conservative Club. I have recorded this migrant species in every month of the year.

Finally, I should like to mention that the Scarce Bordered Straw, *Heliothis armigera* (Hb.), had its best year ever with forty-five being recorded on the Island. The first was taken on 2nd September and James Halsey had ten in his trap on 28th September.

1998 was a poor year for most British entomologists although the Isle of Wight faired better than most places with three macros and two micros new to the Island list, one of which was new to Britain making it an historic year for entomology.

Acknowledgements

I should like to thank my mother for reading and commenting upon the manuscript and Barry Angell for providing the photograph. My thanks also go to Dr David Biggs, Barry Goater, James Halsey, Dr John Langmaid, Tony Redfern, Brian Warne and Dave Wooldridge for their help and information in the preparation of this paper.

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Figure 1. The Pyralid (*Herpetogramma licarsisalis*).

Figure 2. The Oak Processionary (*Thaumetopea processionea*) (Barry Angell)

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Proc. Isle of Wight nat. Hist. Archaeol. Soc **15** (pub 1999): 57 - 60

AN APPROPRIATE PUBLIC HEALTH RESPONSE TO SPIDER BITES AND THE DISCOVERY OF A SPECIES OF A SPIDER NEW TO THE ISLE OF WIGHT - *Steatoda nobilis* (Thorell, 1875)

Paul Bingham, Kieron Cooney and Dick Jones

Abstract

A bite from a spider, when a woman put on her shoe, led to the discovery of a species of spider new to the Island. This paper reviews the literature and biology of *Steatoda nobilis* before discussing the significance of spider bites to humans.

Circumstances of the discovery.

A 30 year old holiday maker attended KC in August 1998 complaining of severe pain in her left leg. One hour before, she had felt a sharp pain on her big toe after putting on her shoes which had been left outdoors overnight. When she removed her shoe she found a dead spider and attributed the pain to a spider bite. She brought the spider with her to the surgery. Within minutes of the presumed bite the whole of the left leg became extremely painful. Her vital signs were within normal limits, there was no fever or abnormal respiratory signs. A bite mark could not be found but neither could an alternative explanation for her pain i.e. there was no local tenderness, swelling, erythema or lymphadenopathy. The patient was given oral antihistamine treatment, analgesia and reassurance. She was advised to seek further medical attention if her symptoms deteriorated but she improved and there were no adverse sequelae. The dead spider was submitted to DJ who identified it as a female *Steatoda nobilis.*

In 1995, the cleaner of a school on the Isle of Wight was bitten by a spider that was initially identified and reported nationally as *Steatoda nobilis* (Hornsly, 1995). A significant number of spiders of similar appearance were discovered at the school and because of a perceived threat to children, the school was closed for a number of days while an attempt was made to control the spiders. The initial specimen, and other similar spiders found at the school, were subsequently identified as *Steatoda grossa* by DJ.

Literature on *Steatoda nobilis*.

Steatoda nobilis is a member of the Theridiidae family of spiders. They are mostly small (less than 5mm long), weave tangled webs, and throw viscid silk to secure their prey, then wrapping it before feeding. The majority of species are rotund with short legs, and marked in a variety of patterns and colours. They are amongst the most commonly encountered spiders, and several species are found in and around houses. The genus *Steatoda* includes some of the largest members of the family, *S. nobilis* being the largest species of the genus found in Britain, up to 14mm in length (*S grossa* up to 10mm). They are mostly a dark, purple-brown with a light band on the front of the abdomen; males and immatures are characteristically marked according to species, but older females lose most of the lighter marks as they increase in size. The web consists of an undulating sheet in the middle of the tangle; a tubular retreat is made at the side, where the spider spends its days, venturing on to the lower side of the sheet at night to await prey. Some individuals have been found in retreats on old walls in Portsmouth, but with no external web.

Of the four previously recorded species, *S. phalerata, S. albomaculata, S. grossa and S. bipunctata,* the first two are relatively rare and occur at ground level under stones where they catch beetles and ants. The last two species are found mainly around houses, *S. bipunctata* being widespread in Britain, and very common in the south. In the 1980's two *S. paykulliana* were found in Britain, possibly imported with fruit from southern Europe, or accidentally packed in the luggage of a returning holiday-maker, but they have not established themselves. Their venom is poisonous to mammals.

In 1996 a single example of another species, *S. triangulosa,* common in houses in southern Europe, was found in Leicester.

Steatoda nobilis was first described from Madeira in 1875 by Thorell as *Lithyphantes nobilis*. The species was first reported in Britain by Pickard-Cambridge in 1879 on the basis of a specimen taken by the Rev. Hamlet Clark near Torquay 'some years ago'. *S. nobilis* was described again in Britain in 1907 but then not again until 1979 (single female) (Jones, 1979). From 1986 onwards, the species has been found in significant numbers in suburban and central Portsmouth. *S. nobilis* is a native of Madeira and the Canary Islands and is clearly an import into Britain that has become established as a British species (Snazell and Jones, 1993).

Although numerous examples were found in Portsmouth during the 1980's, the species was not immediately added to the British list because, at the turn of the century the earlier, isolated finds had not resulted in it becoming established. Its occurrence in Madeira and the Canary Islands was thought to indicate its climatic requirements, which would not be found in Britain. However, it became evident that it was actually thriving here, in spite of long spells of unusually cold weather at all seasons in several years during the 1980's. Currently *S. nobilis* is recorded from maritime counties from Dorset to Essex and a bite has previously been reported (Warrell et al, 1991). British specimens are usually much larger than those found on the Atlantic islands.

In recent years, one of us (DJ) has seen a number of webs thought to belong to *S. nobilis* on cars in the Waterlooville area; in 1988 he had one on his own car which was collected and identified. Since 1996 the spiders have been found regularly on the outside of his house.

Spider venom

Apart from two rare, Red Data Book species which have no venom, all other British spiders (over 600 species) are thought to possess venom which is delivered through a pair of fangs which transfix the prey. The size of the fangs is proportional to the size of the spider, so it was thought that tiny spiders, like the Linyphidae (Money Spiders) had fangs too small to stab human skin; but in 1974 sewage treatment workers in Birmingham were reporting bites from the numerous Money Spiders which lived in the filter beds (Duffey and Green, 1975). However, considering the habitat , the symptoms might have been due to secondary infection, rather than spider venom.

Spider bites - an appropriate response.

All of the few British spiders which have been recorded as biting man occur on DJ's property in Portsmouth, but he has never been bitten by any. During the last twenty five years, in which he has investigated their ecology, he has been nipped only twice; on both occasions by females guarding their eggs. In neither case was blood drawn, and no symptoms were experienced, unlike numerous bites from mosquitoes during the same period. *S. grossa* is more often found inside buildings than outside; inside they can subsist entirely on woodlice. *S. nobilis* is more common on the outside of houses where they will predate beetles and earwigs (as well as woodlice). Any web-making spider which fails to catch sufficient prey will move to a new site. When male spiders mature, they leave their webs in order to find a mate (most large house spiders of the genus *Tegenaria* seen indoors in the early Autumn are males). It is during these excursions that they come into contact with the most fearsome product of evolution, *Homo sapiens,* and many are killed ('hoovered' to death!). These domestic spiders are nocturnal - for their own safety - but seek out dark hiding places for the day. If these are in clothing, the spiders can be squashed when it is put on, and then bites can occur.

At a meeting following the spider bite at the Island school in 1995, several live specimens of *S. grossa* and a female *Nuctenea umbratica,* an orb web spider common on buildings, were brought in, the latter having bitten the collector. Many spiders run away if molested, others pull in their legs and remain immobile, even if touched, and DJ demonstrated that none of them would bite when left to run over his hands.

Although the British literature on human spider bites is sparse, spider bites are clearly more common than 'officially' recognised. In Britain, the medical consequences of a spider bite are almost invariably minor and bites thus go unreported. The school incident on the Isle of Wight has heightened local awareness of spider bites. Since then the Department of Public Health has been notified of one or two bites per year. In view of the lack of British literature, lessons are drawn from North America and Australian reports.

Internationally, spider bites are more numerous in the warmer months of the year and an inverse calendar relationship is seen between the northern and southern hemispheres, reflecting seasons. This is likely to reflect greater activity of both spider and man in warmer weather. It has also been suggested that spider venom is more toxic at higher temperatures and that this might lead to increased reporting (Rauber, 1984).

It has been pointed out that human spider bite experience is as much a function of human behaviour as it is a reflection of spider ecology. In the earlier part of this century spider bites to the genitalia and buttocks were more common in both North America and Australia from use of outdoor privies. These bites were caused by *Latrodectus* species (Theridiidae). The introduction of rural electrification/ sewage and a trend to indoor lavatories have reduced this risk (Rauber, 1984).

Hawdon, reporting on Australian spider bites noted that the Redback Spider (*Latrodectus hasselti*) was most frequently responsible for bites requiring medical attention but that the most serious bites were attributable to the Funnel Web Spider (*Atrax robustus*) that has caused a small number of deaths (Hawdon and Winkel, 1997). This spider is restricted to a 160km radius of Sydney. 'Pressure immobilisation' is recommended as first aid. Antivenom is available for both of these spider bites

In an article on 'spider bites in the United States', Anderson lamented the fact that case reports had been published without 'indisputable evidence that the spider actually bit the patient' (Anderson, 1997). He suggested criteria for publication (see table 1).

Table 1: Criteria for Publication.

Proven Case	Spider found in immediate proximity to bite.
Probable Case	Spiders recovered promptly nearby or within the house
Presumed Case	Spiders have been recovered often in the Community but are not found in the vicinity of the patient.

Anderson noted 'considering the vast variety and number of spiders in the United States, the incidence of serious medical problems as a result of any of them is negligible'. He considered only two local spiders to be medically significant - the Brown Recluse Spider (*Loxosceles reclusa* (Sicariidae)*)* that can cause necrotic skin ulcers and Black Widow Spiders (*Latrodectus*) species that can cause painful muscle spasm and central nervous disturbance.

Anderson commented 'There are billions of *Loxosceles* in Missouri mixed with millions of humans, but bites are few and, with exceptions, trivial. It is professionally irresponsible to encourage the press and television reporters to alarm the public about the dangers of spider bites. These reports should be calming and reassuring. Experience shows that it is not possible to rid a building of all spiders and so to prevent all bites. Patients often want to fumigate, but the benefits are lacking. The spiders are little affected by residual pesticides and will return promptly. Remind your patients of the immunity after a bite and that most bites are trivial. Advise a thorough housecleaning. Mention that pesticides have their own risks'.

S. nobilis is now clearly established as a British species and appears to be spreading in the south of England. This paper is the first report of this species on the Isle of Wight. The spider may well have been brought to the Island on the outside of cars, a route that might be employed by other species.

Many spiders are quite capable of biting humans but bites appear to be uncommon. In Britain bites of medical significance are very uncommon.

The public health response to spiders needs to be measured. It is rarely possible to rid a building of all spiders. The public should be made aware that spiders generally only bite humans in self defence.

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Figure 1. Steatoda nobilis (Thorell) (Dick Jones)

Proc. Isle of Wight nat. Hist. Archaeol. Soc **15** (pub 1999): 61 - 65

AMPHIBIANS, REPTILES AND MAMMALS REPORT : DECEMBER 1997 - NOVEMBER 1998

Richard Grogan

Introduction

The following report is the result of the past year's work by the Isle of Wight Natural History and Archaeological Society's Mammal, Reptile and Amphibians Section. This does not include records for bats (Chiroptera) or marine mammals (Cetacea and Pinnepedia) which are reported by other groups within the Society. It does not include reports of field meetings which are published in the Society's Bulletin, but does give the results of trapping.

The work of the Section is carried out in two major ways. Firstly, site visits are made and the presence of mammals recorded by signs, sightings and traps, if appropriate. Secondly individual members of the Section and the Society are invited to submit their records by the last week in November of any mammals or herptiles that they may have observed. Most oof these animals are conspicuous and not easily confused but details should be supplied for the following, more uncommon species : Great Crested Newt, Yellow-necked Mouse, Otter, all deer, Harvest Mouse, Water Shrew and Mink.

Trapping was concentrated on the area of the Island between OS km squares SZ 61 and SZ 66 and at non statutory nature reserves.

Amphibia

Common Frog (*Rana temporia*)
Only a few records, all from garden ponds or urban environments. Still under recorded.
A single large frog was seen crossing Nodes Road in Cowes on 25th November.

Common Toad (*Bufo bufo*)
A few records again but over a wider geographical spread. More common than the common frog.

Great Crested Newt (*Triturus cristatus*)
Thanks to the activities of Island Pond Action and Southern Water we now have more sites for this species. This year they were found at Parkhurst Forest, Kitbridge, Elmsworth Farm and Prospect Farm.
The search will continue in previously recorded sites to give us as much data about these animals as possible.

Smooth Newt (*Triturus vulgaris*)
Often found with the Great Crested Newt when the searches were carried out. Eight were found in the old truck cleaning pit at Prospect Quarry.

Palmate Newt (*Triturus helveticus*)
Found in a hibernation site under a rotten tree log at Ashey. Our most common and widespread species with thirty one found in a small pond at Cranmore and forty were rescued from a garden centre in Newchurch.

Reptilia

Slowworm (*Anguis fragilis*)

Reports of this species has increased due to its fondness for housing and other development sites. Prior to the building of the new Sainsbury's supermarket a rescue of the slowworms was carried out and 183 individuals were removed to more comfortable surroundings. A good year for this species generally.

Common Lizard (*Lacerta vivipara*)

Recorded regularly at Compton and Luccombe landslips as well as more urban sites such as the Sainsbury's site and Seaclose Park. Also recorded at Alverstone, Parkhurst, Cridmore, Berry Hill and the old sea wall at Yarmouth.

Wall Lizard (*Podarcis muralis*)

Twelve were seen on 14th September, the planned field visit having been cancelled on the 12th. Seen from March to October in good conditions. Seven including five hatchlings were rescued from the Rex Cinema site before demolition works were due to begin.

Grass Snake (*Natrix natrix*)

Recorded from April to September generally near ponds or on wetlands. As well as places like Cridmore and Blackpan Common this species was also recorded on the landslips at Puckaster, Redcliff and Compton. One was seen on a warm January day at Scotchell's Brook, a very early date.

Adder (*Vipera berus*)

A good year for this species with many sightings on patios and concrete in people's back gardens. The damp cool weather meant many adders took longer to bask and were seen by sleepy eyed gardeners who didn't know they were in their gardens at all. In September three were seen together on St Boniface Down.

Mammals (Systemmatic list based on Corbet and Harris 1991)

Hedgehog (*Erinaceus europaeus*)

Sixteen records were received of which three were road casualties. A squashed hedgehog on the road still seems to be the only time people find these animals which are generally not elusive. Are they under recorded?

Mole (*Talpa europaea*)

Ubiquitous, being recorded at all times of the year in suitable habitat. The wet weather has caused an above average number of road deaths. This is due either to the moles being forced to the surface by being flooded or the fact that they go in search of flooded out earthworms.

Common Shrew (*Sorex araneus*)

A widespread species but under recorded. It is seldom caught in Longworth traps that are only out overnight. However it still appears regularly in owl pellets and shows no signs of decline.

Pygmy Shrew (*Sorex minutus*)

Only one record, in Town Copse, Newtown, occupying a dormouse box. Not often found in owl pellets the status of this mammal here is unclear.

Rabbit (*Oryctulagus cuniculus*)
Ubiquitous being recorded in 85km squares in this year alone. Is there anywhere rabbits have declined. Black rabbits were found at four sites, Redcliff, Peakyclose, Bembridge and Whitefield Woods.

Brown Hare (*Lepus capensis*)
A widespread and relatively common species though declining on the mainland. Most often seen singly from January to October, the sight of 20 in fields at Elmworth Farm breaks all previous records by a long way.

Red Squirrel (*Scuirus vulgaris*)
This year has been yet another good year for this species. It is becoming increasingly seen in outlying areas, away from its woodland strongholds, such as Thorley, Puckaster, Niton, St Johns Wood in Ryde, St Lawrence and Seaclose Park. The second most recorded mammal on the Island.

Bank Vole (*Clethrionomys glareolus*)
Usually found by trapping though occasionally seen in woodland rides. Recorded across the Island by looking at characteristically chewed hazelnuts and also remains in owl pellets.

Field Vole (*Microtus agrestis*)
Far less commonly trapped this species is usually recorded by predators. Cats provide many records as do barn owls. Though Britain's commonest mammal its habitat seems to be in decline with an apparent loss in rough grasslands. A nest with a mother and young was uncovered in Skinner's Meadow at Alverstone.

Water Vole (*Arvicola terrestris*)
An elusive animal that needs to be searched for. The bird hide at Alverstone Mead however is a good vantage point for a patient mammal watcher. Water voles are less studied away from rivers so a sighting of one at Bonchurch pond was a good record.

Wood Mouse (*Apodemus sylvaticus*)
A common and widespread rodent found in homes and gardens as well as in semi-natural habitats.

House Mouse (*Mus musculus*)
Only three records of this presumably common animal though these were not in domestic situations. It is possible that once cats have killed their quarry they transport it some distance from houses whilst playing .

Common Rat (*Rattus norvegicus*)
A widespread and common rodent becoming increasingly bold. Ten were seen at one time in a Shalfleet garden whilst eight were seen together approximately six feet high in a hawthorn hedge taking haws at Alvington.

Common Dormouse (*Muscardinus avellanarius*)
An elusive nocturnal rodent that few have observed in the wild. As well as being present in many of our woods it may also occasionally be found in gardens. The nest boxes have proved popular again with ten being found in the boxes at Mill Copse this October and nine found in Town Copse. A young dormouse was also found in a kitchen in Wellow, curled up in the plug hole of the sink. It had gained

entry along a hose pipe that had been pushed through the window from the tap to the garden. This is our first ever record of a domestic dormouse. It was released into a nearby wood the following week.

Fox (*Vulpes vulpes*)
The most often recorded mammal on the Island this year. Ubiquitous and on the increase with cubs often being the victims of road accidents.

Stoat (*Mustela erminea*)
Fewer records than last year but widespread. A notoriously difficult animal to survey and its status must be considered as declining unless more records are forthcoming.

Weasel (*Mustela nivalis*)
As last year, many more records of this species which seems to be widespread and has healthy populations.

Badger (*Meles meles*)
Now a common animal across the Island with its northward spread increasing. Now regularly seen in the Medina Valley and also more common in the Newtown area. Again approximately one third of records were of road casualties.

Escapes and Introductions

Fallow Deer (*Dama dama*)
A single male had been seen in Noke Plantation and Parkhurst at the beginning of the year. In November a series of sightings, reported in the County Press, from Seaview, Sandown and Lake of a male of this species. Whether it swam the Solent or is one of those from the Robin Hill herd, which were last seen around Newnham Farm, it is impossible to tell.

Feral Goat (*Capra sp*)
These animals continue to thrive on Bonchurch Down where they were introduced to combat the scrub problems on the chalk grassland there.

Polecat / Ferret (*Mustela putorius* - domesticated)
One was seen by two observers, killed on the road at North Fairlee.

Trapping Results

a. Bembridge Down SZ625860 chalk grassland and scrub
Two woodmice were caught - one male and one female (average weight 25g)

b. Pelham Woods SZ541768 secondary woodland
One bank vole was caught - male (weight 25g)

c. St Helens Common SZ632894 secondary woodland
Four woodmice were caught - three females and one male (average weight 20g)
One bank vole was caught - male (weight 17g)

d. Youngwoods Copse SZ574857 ancient woodland
Eight woodmice were caught - four males and four females (average weight 19g)
One bank vole was caught - female (weight 20g)

e. Lower Rowborough SZ608886 plantation woodland
One woodmouse was caught - male (weight 17g)
Two bank voles were caught - one male and one female (average weight 20g)

Traps were also laid at Bembridge Marshes but nothing was caught

Acknowledgements

Many thanks to all landowners who allowed access onto their properties. I would like to thank all those that have helped in the past year. Contributors to this report are listed below :

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Proc. Isle of Wight nat. Hist. Archaeol. Soc **15** (pub 1999): 67 - 68

BATS (CHIROPTERA) - 1998

Colin R. Pope

The Island continues to produce a rich variety of bat species. Highlights this year include the third Island record of Nathusius' Pipistrelle, three records of Grey Long-eared Bat from new sites and a further two reports of Bechstein's Bat. There are encouraging signs of possibly an increase in Noctule bats but the sorry plight of the Greater Horseshoe Bat continues to cause concern. A survey of bat roosts at Newtown carried out by the group on behalf of the National Trust is reported elsewhere.

Greater Horseshoe Bat (*Rhinolophus ferrumequinum*)
A single individual was present in the Undercliff hibernaculum on 7th December 1997. A single individual was seen in Ventnor railway tunnel on 6th May and again on 14th May when it was removed under licence to another site. This was because Southern Water were due to commence pipe laying operations in the tunnel. The bat was a male. No records of any from Carisbrooke Castle this year. The sole bat there in 1995 was a female.

Whiskered/Brandt's Bat (*Myotis mystacinus/brandtii*)
One hanging on the outside of a building at St Mary's Hospital on 7th August was fed and released. One from New Road, Porchfield, which died was confirmed as a male Whiskered.

Natterer's Bat (*M. nattereri*)
A single individual in the Shide Tunnel hibernaculum on 14th December 1997, could not be refound on 1st February 1998. One recorded in a thatched barn at Mottistone on 5th February. A male found at Carisbrooke Castle on 7th July. Another male brought in by a cat to a house in Station Road, Wootton on 6th December during a cold spell of weather.

Bechstein's Bat (*M. bechsteinii*)
An injured male picked up by Willie Henderson at Copse Lane, Freshwater on 3rd May subsequently died. Another male was found by the roadside at Godshill on 10th May by Lynn Watterson. It was too badly injured to be released but is being cared for by Yvonne Evans and at the time of writing continues to do well. This is probably the only long-term Bechstein's in captivity in this country. It is the first record of this species from southeast Wight.

Daubenton's Bat (*M. daubentonii*)
A male was collected from Albany Prison by Jillie Pope on 15th October and subsequently released. We have a previous record from this area; one was found by a prisoner on 3rd October 1988. The only other records this were from bat detector records from the Eight Bells pond at Carisbrooke (where they are frequent) and elsewhere.

Serotine (*Eptesicus serotinus*)
Many records and roost counts. The highest roost count recorded was 59 from a house roost in Adgestone on 22nd June.

Noctule (*Nyctalus noctula*)
An encouraging number of records this year. One at Brading flying from the direction of Nunwell Hanger was recorded on the evening of 7th May. At least five watched feeding over Dodnor Creek by the bat group on the evening of 12th May; the bats emerged from a tree roost in Dickson's Copse. The roost in Parkhurst Forest discovered last year was used again this year but only for a short period. Tom Ransome counted nine out on 20th July and the bat group counted thirty four out on 4th August. They

emerged from two exit holes. On the same evening, a few were feeding over Dodnor Creek. The Parkhurst roost was deserted soon afterwards but Tom Ransome located a different tree roost in the Forest in mid August. Graham and Donna Streets collected a grounded bat at Camphill Prison in September which proved to be a male. It was subsequently released.

Pipistrelle (*Pipistrellus pipistrellus*)
Very commonly recorded. Only two roosts were known to hold more than one hundred bats. Counts in June yielded a maximum of 123 from a house in Ryde and 153 from a house in Rookley.

Nathusius' Pipistrelle (*P. nathusii*)
One grounded at the Battery, Lake on 1st May. It was a male and the third Island record (*Fig. 1*). This bat is rare but becoming more frequently recorded in this country. Originally classified as a vagrant species evidence is accumulating that at least a few stay on to form breeding colonies in this country. This individual was cared for by Donna and Graham Streets and survived several weeks in captivity.

Brown Long-eared Bat (*Plecotus auritus*)
Frequently recorded.

Grey Long-eared Bat (*P. austriacus*)
Rarely recorded away from the known roost at Niton and so three other records, including two from the Brighstone area, were of particular interest. Simon Young found one killed by the roadside between Brighstone and Limerstone in April. It was a male. Oliver Frazer recorded this rare species from Brighstone in 1987. A second male was found dying at Pitt Place Lane, Brighstone in September and taken to Yvonne Evans. A bat reported from outside a house in High Street, Whitwell in the same month was collected by Jill Green and proved to be a male Grey Long-eared.

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Figure 1. A Nathusius' Pipistrelle found at the Battery, Sandown. Larger than the Common Pipistrelle with distinctly shaggy fur. (Peter Deacon)

Proc. Isle of Wight nat. Hist. Archaeol. Soc **15** (pub 1999): 69 - 76

THE MAMMALIAN PREY OF THE BARN OWL (*Tyto alba* Scopoli) ON THE ISLE OF WIGHT

Richard A. Grogan and Steve Whitbread

Abstract

Barn Owl pellets were collected at various times from sixteen different sites on the Isle of Wight between 1986 and 1998. The species and prey unit composition was in agreement with findings elsewhere in the United Kingdom; Field Vole (*Microtus agrestis*), Common Shrew (*Sorex aranaeus*) and Wood Mouse (*Apodemus sylvaticus*) predominating.

Common Dormice (*Muscardinus avellanarius*) were found more frequently than would be expected from previous mainland records. They occurred most commonly when the more usual prey were thought to be at low density, when the range of prey taken was much wider than usual. Bechstein's bats (*Myotis bechsteinii*), one of Britain's rarest bat species were also found.

The significance of these findings is discussed.

Introduction

Whilst undertaking a study of the Common Dormouse at Porchfield on the Isle of Wight with Steve Whitbread, we became aware that Barn Owls had been nesting and roosting locally for many years. Since owls are potential predators of the Common Dormouse we decided to investigate the diet of these owls by examining their pellets retrieved from their nest/roost sites. Subsequently, we collected further samples from this roost and from a number of other sites across the Island.

The Barn Owl feeds mainly on a variety of small mammals (Glue 1967, 1974; Bunn et al 1982), usually swallowing its prey whole and regurgitating fur, bones and other indigestible material in the form of pellets. Examination of pellet contents can reveal various information about the owl, its feeding area and its prey (Glue 1970, 1974). Pellets break down slowly. They may vary in size, shape and colour, but are generally black, oval masses of compacted fur and bone, approximately 30-70 x 18-26 mm, with a characteristic varnished appearance (Glue, 1974).

Methods and Study Sites

Pellets and material from decayed pellets were collected from roost sites in summer and winter and from the nest site once any young had fledged and left the nest. Each whole pellet was numbered and broken apart by hand. Mammal remains were identified from teeth, skulls, lower jaws and other distinctive bones eg shoulder blades or finger bones (Yalden & Morris 1990). Birds were also found in vey small numbers. Samples were also obtained from Porchfield (three different sites), Bembridge, Robin Hill, Crainges, Ashey Downs, Ashey, Hillis Gate, Alverstone Marshes (two different sites), Newtown, Chillerton, Cranmore, Shalfleet and Newport between 1986 and 1998.

Results

A total of 797 entire pellets were examined. The minimum numbers of prey in each pellet were combined to give an estimated total of 2541 prey items (average 3.3 items per pellet - range 1 - 12). A further 1485 prey items (representing some 464 pellets) were found in decomposed pellet material. Traces of ten mammal species were found with three of these (Field Vole, Common Shrew and Wood Mouse) forming 90% of prey taken.

List of Ten Species from 4026 prey items

Common Shrew (*Sorex araneus*)	Pygmy Shrew (*Sorex minutus*)
Field Vole (*Microtus agrestis*)	Bank Vole (*Clethrionomys glareolus*)
Wood Mouse (*Apodemus sylvaticus*)	House Mouse (*Mus musculus*)
Common Dormouse (*Muscardinus avellanarius*)	Brown Rat (*Rattus norvegicus*)
Bechstein's bat (*Myotis bechsteinii*)	Bat sp. (*unidentified*)

Of the least discovered species the Common Dormouse appeared in twelve of the 40 samples (30%) from seven sites. House Mouse were found in small numbers but constituted a major part of one owl's diet in 1989. Bats, including what we believe the first Bechstein's bat to be recorded in an owl pellet, were found at Newtown and Porchfield.

The results allow us to look at the diet of Barn Owls both seasonally and annually to investigate changes which may affect either Barn Owl or small mammal success over this time. It should be pointed out that only trends can be detected owing to many other factors that can affect mammal and bird populations.

Comparison with the rest of the UK

Comparison of our findings with converted figures from 29 roosts in the UK (Glue 1974) reveals close similarity in the overall ranking of the seven major prey items (see Figure 1.1 and 1.2). However the Barn Owls on the Island seem to take smaller numbers of voles and shrews and larger numbers of Woodmice and Common Dormouse. Though differing from mainland examples the results concur with another study carried out on the Island in the early 1970's (Gloyn pers comm - Figure 1.3).

Seasonal changes

The Barn Owl takes advantage of the natural seasonal fluctuations of mammalian prey over the year. Field voles are taken in high numbers in the winter prior to owl breeding. The owl switches to shrews and other prey and Field Vole frequency declines. As the autumn comes there is a obvious switch back to Field Vole and the decline in shrews is compensated again by an increase in other prey (Figure 2)

Annual Changes

The data as a whole shows that fluctuations in the components of the Barn Owl's diet are apparent over time. With a high number of one species others are caught less frequently but the total number of prey items (and therefore hunting trips) remaining relatively constant over the years (though not over the seasons - see above). Looking at the mean number of each species per pellet rather than percentage figures, the vole populations seem to undergo slight cycles with lows every seven years. These lows are accompanied by high numbers of shrews in the diet and numbers of Woodmice are decreasing.(Figure 3.1) When vole numbers are high, shrew numbers are lower and Woodmice are increasing. Other prey in the diet seems to be taken as required or as it is available with peaks appearing at times of low shrew or vole numbers.

Since Southern (1954), introduced the simple concept of the 'prey unit' - 1 unit being equivalent to one 'typical' 20g rodent - many authors, whilst recognising the problems associated with such conversions, have attempted to assess the importance of different prey species in terms of the proportion they make up of the biomass in owl diet. Here, apart from adopting a lesser weight for the Common Dormouse and adding a value for Bechstein's bat we have followed Yalden and Morris (1990) average weights of potential prey species (Figure 3.2).

There seems to be a direct effect on shrew populations by owl predation as this causes brood size to drop when the effect co-incides with a naturally poor vole year. An increased brood size can be attained

by the owls by diversifying their diet where both shrew and vole numbers are recovering (Figure 4). The anomalous data in years 87 - 89 are probably due to low sample size from only one site.

Conclusions

The Barn Owls on the Isle of Wight seem to show no great differences with the modern owls on the mainland. Interestingly there is a high proportion of Wood Mouse in the diet of Island owls which has persisted since the 1970s though this seems to be a recent phenomenon on the mainland.

Seasonal changes in diet can be explained by the natural annual population dynamics of Field Voles. High vole populations prior to the vole breeding season allows the owl to synchronise its own breeding cycle. Male voles become aggressive and thin out the vole population prior to vole breeding (Gipps and Alibhai in Corbet and Harris 1991). The owls therefore switch to shrews as they increase in number. There is also a rise in other prey items being taken. As voles breed and become more numerous the owls switch back to field voles, allowing shrews to recover over winter.

Annual fluctuations can be explained by trends in vole and shrew populations. Voles seem to undergo slight population cycles every six years (Figure 4) and barn owl recruitment is highest in high vole years. In low vole years, shrews are taken in order to compensate for this effect. However high brood sizes lead to a decline in shrew numbers, due to predation, and in times of low vole populations Woodmice are hunted to compensate.

Discussion

The Barn Owl is the world's most widespread land bird (Bunn et al, 1982). It is one of five species of owl found on the Isle of Wight and the second most numerous (in excess of 50 pairs in 1986)(Gloyn 1986).It feeds mainly on small mammals and in northern Europe consumes an average of 110g of prey each day; egesting two pellets in a 24 hour period.

Over its range the barn owl's diet varies with the distribution and abundance of its different prey species. In the UK, known prey size ranges between that of the pygmy shrew *Sorex minutus* (4g) and the Rabbit *Oryctolagus cuniculus* (1500g), though it is only the smaller individuals, or parts, of these larger species which are taken (Glue 1974). Trends in changes in the management of the countryside may be detected. Such a trend has been shown in recent years to be partly due to loss of habitat of small patches of vole habitat forcing owls to hunt in sub-optimal areas and therefore increasing the incidence of Woodmice in the diet (Love and Webbon 1998). However the Isle of Wight does not have the Barn Owl's major competitor, the Tawny Owl (*Strix aluco*). This species hunts in areas of scrub and woodland and competes with Barn Owls for tree nesting sites. The large numbers of woodland species in the diet of Island Barn Owls may be due to the fact that the Barn Owl is able to fill part of the Tawny Owl's feeding niche and chooses to hunt in woodland rides and scrub-edge as well is in traditional grassland sites. This is borne out by anecdotal evidence fom the author and others who have observed Barn Owls hunting in woodland rides. This exploitation of sub-optimal habitats for field voles may also explain the success of the Barn Owl on the Island.

Food choice is based on prey availability - its abundance and rate of replacement in areas where owls are able to hunt effectively; capture probability - some species are active in open areas, some freeze in place when disturbed; and return for handling times - some species take longer to capture, larger animals provide a better return than small animals, but very large animals may be difficult to subdue. Larger animals also take longer to digest before owls may hunt again. Within a species younger animals may be more prone to capture by reason of their inexperience and their exclusion from more optimal 'safer' areas by larger conspecifics.

Usually a small number of species occurs in the diet in such a way that a large hierarchy of abundance is achieved although in extreme circumstances the Barn Owl will change its feeding area and switch to

other prey (Glue 1967). When small mammal numbers fail to reach sufficient levels then the owl must necessarily switch its attentions to other less common, less easily 'catcheable', less rewarding species.

In western Europe and the United States voles predominate in the owls diet. The Field Vole *Microtus agrestis* is usually the most abundant species in the owl's diet in terms of both numbers and biomass in the UK. Common Shrew and Wood Mouse are the usual buffer species increasingly preyed upon in times of low vole availability. Those species which for reasons of scarcity, difficulty of capture or timing of activity form less than 5% of the diet are only likely to be more heavily predated when populations of the main prey species are at low levels. Bats are most likely to occur where owls find hollow tree roosts. Natterer's bats (*Myotis nattereri*) occurred in a study of Barn Owls in Wales where, of the six bats found in 2568 pellets, three were Natterers (Love 1995). The presence of Bechstein's bat in the diet of the owls around Newtown only increase this area's value for Britain's endangered mammal fauna.

The Common Dormouse is a species of woodland-edge habitats (Hurrell and McIntosh, 1984), living mainly in shrubby woodland, scrub and hedgerow (Bright et al 1996). It occurs at much lower densities than mice and voles (Bright and Moriss in Cobet and Harris 1991) and is predominately arboreal and therefore, even where it is found in Barn Owl feeding areas, it is not likely to occur very frequently. Therefore the presence of dormice in the diet of Barn Owls at these levels on the Island is significant For a pair of owls an area whose feeding territory is known to include woodland and hedgerow where Common Dormouse occurs relatively commonly it is likely that dormice will crop up in pellets on an occasional basis. It is also possible that the proportion of dormice will increase later in the year as a result of the longer duration of activity and the numbers of young around at this time. At times when Field Voles at low numbers however when the owl's feeding spectrum is increased it is likely that dormice will be increasingly at risk.

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Richard Grogan Kervil Cottage, Hollow Lane, Chillerton, Newport, Isle of Wight PO30 3ET

FIGURE 1.1

Mean Frequency of Mammalian Prey in the Diet of the Barn Owl on the Isle of Wight 1986 - 1998

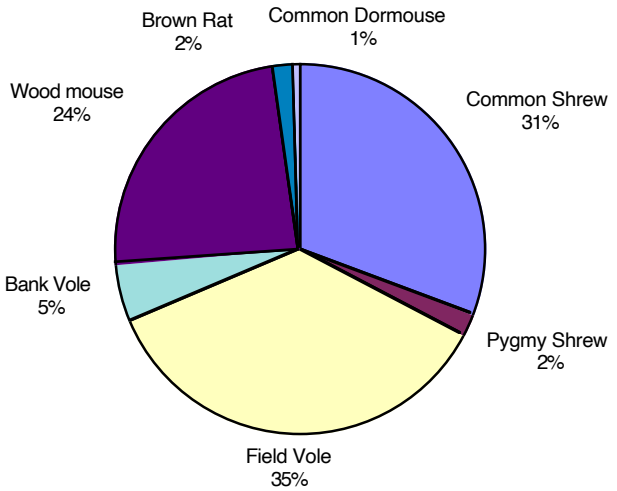


FIGURE 1.2

Mean Frequency of Mammal Species in Barn Owl Diet in South East England (Glue 1974)

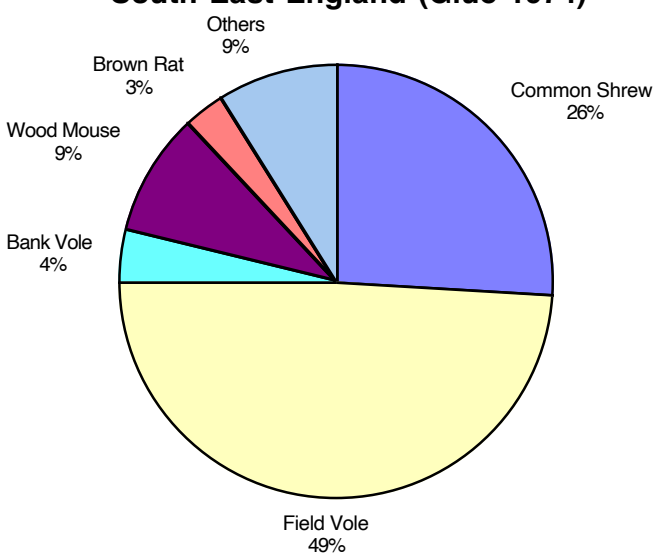


FIGURE 1.3

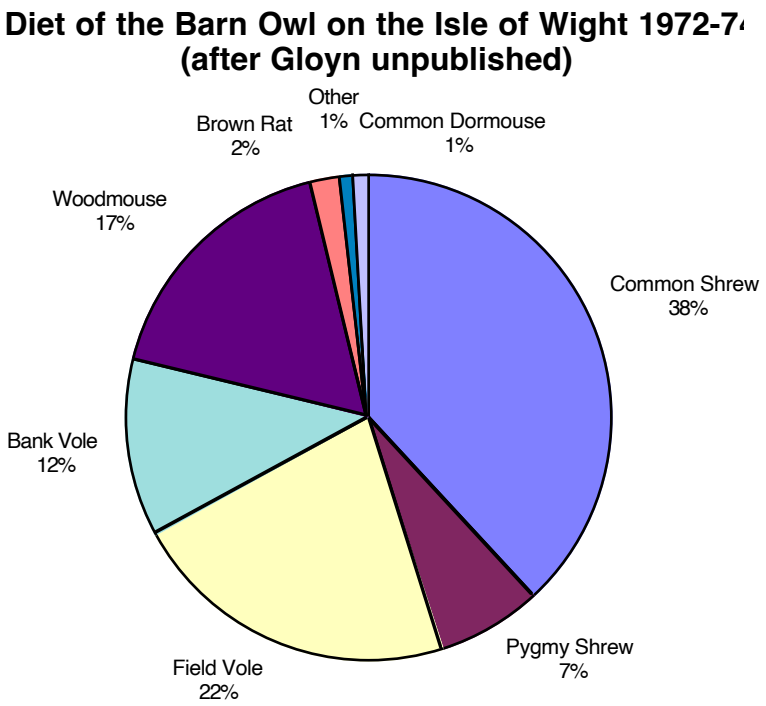


FIGURE 2

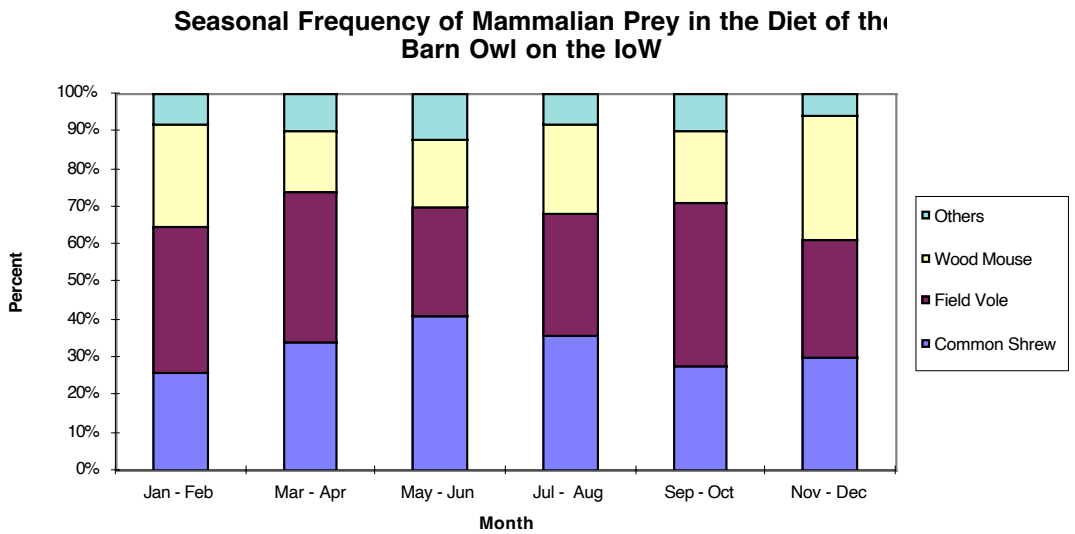


FIGURE 3.1

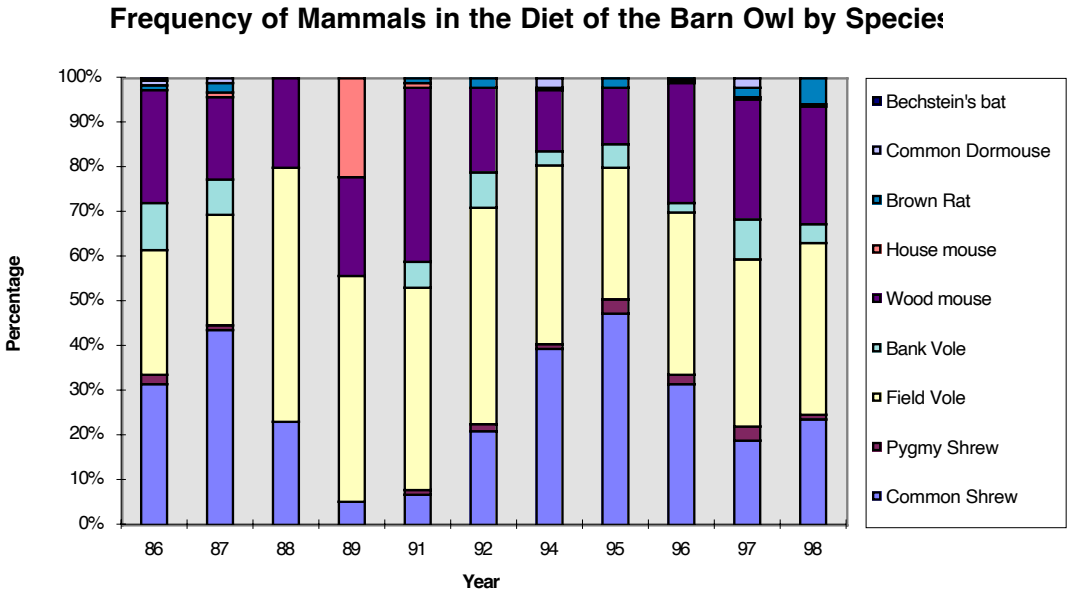


FIGURE 3.2

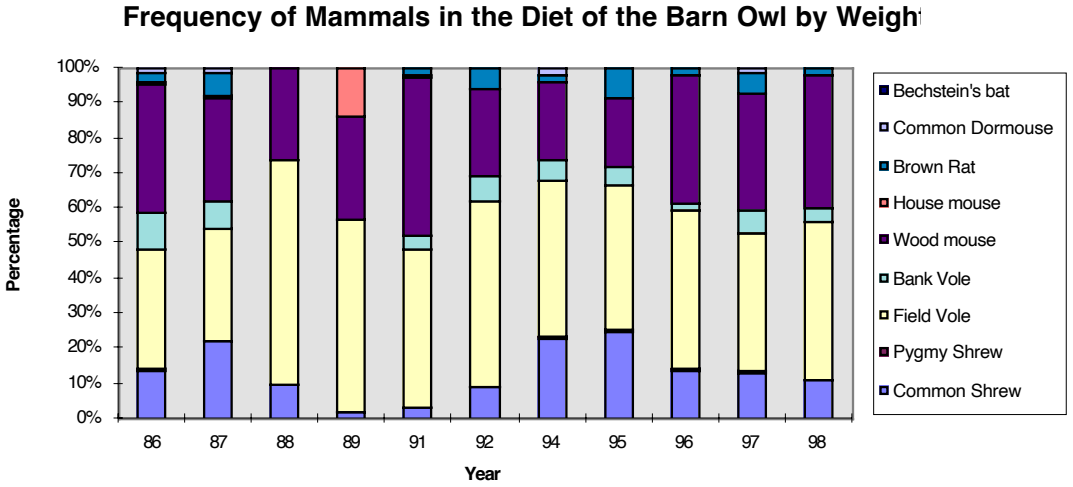
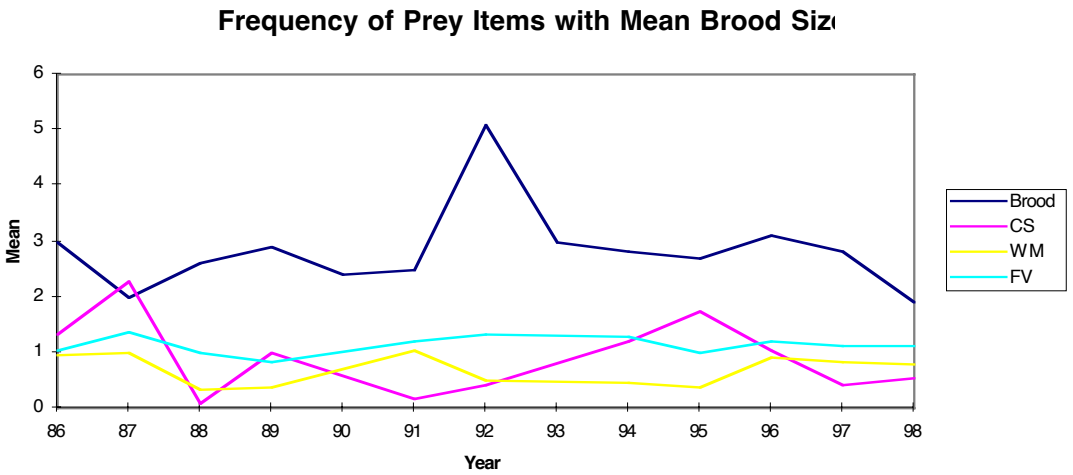


FIGURE 4


Frequency of Prey Items with Mean Brood Siz
Mean
Year
0
1
2
3
4
5
6
86
87
88
89
90
91
92
93
94
95
96
97
98
Brood
CS
WM
FV

Proc. Isle of Wight nat. Hist. Archaeol. Soc **15** (pub 1999): 77 - 78

MARINE MAMMAL AND MARINE REPTILE REPORT FOR 1998

M. Cahill

Details of recorded sightings are presented in Table 1. There were confirmed reports of Bottlenose Dolphins (*Tursiops truncatus*), a Common Dolphin (*Delphinus delphis*) a stranded carcass of a Harbour Porpoise (*Phocoena phocoena*) and an unidentified seal. There was also a sighting of a Loggerhead Turtle (*Caretta caretta*).

Four of the Bottlenose Dolphins which were photographed off Yaverland in May 1997 (Cahill, 1998) were positively identified by the Coastwatch Officer at Durlston Country Park, Dorset, as being the same animals as those seen regularly off Durlston Head. This follows the initial identification of two dolphins.

On Saturday 27th June in the late afternoon, Coastguards were alerted by a member of the public, to a stranded dolphin at Windy Point near Blackgang. It was alive and the Coastguards attempted to re-float it, without success, as the sea was too rough with a Force 6-7 wind blowing onshore. The dolphin was then carried up the cliff on a stretcher, wrapped in a tarpaulin to keep it wet and transported by vehicle to Shanklin where the sea was calmer. The animal was taken into the water, still in the tarpaulin and held there for two hours until members of Marine Life Rescue arrived from Havant. A veterinary officer and an officer from the RSPCA were in attendance. Marine Life Rescue identified the dolphin as a young Common Dolphin about nine months old, 1.5m long and weighing about 75kg. They decided that it had a chance of surviving if released. It was given two injections by the vet and two feeds of fluids by tube. This involved opening the mouth of the dolphin with two towels and passing a tube down its throat. The team then tried to release the dolphin which became confused, it is thought, by the shallow water and a pipe nearby and returned to the beach. Sandown Bay Inshore Rescue launched their boat and the dolphin was again wrapped in the tarpaulin, held alongside the boat and taken 3km out to sea, where it was released. It swam about, returned to the boat and then swam away. This was at 1.15am on Sunday 28th.

A most unusual sighting for the Solent was that of a turtle, seen swimming to the east of Bramble Bank on 14th August, and reported in the Autumn Newsletter of the Cowes Corinthian Yacht Club. Upon further investigation, and from the detailed description given by the observers, it was identified as a Loggerhead Turtle. There has been only one previous confirmed record of this species from local waters; a small specimen found alive on the shore near Newtown on July 7th 1899 (Wadham, 1909). However a large turtle of weight 300lbs was reported in the Isle of Wight Magazine from Bouldnor on 12th November 1799 and referred to in our *Proceedings* (Eldridge,1925). There is also a report in the Isle of Wight Observer, for 1st December 1855, of a turtle seen off Ryde weighing 200lbs.

Land Based Marine Mammal Survey

Regular sea watches were carried out at Ventnor and Yaverland during 1998 with no cetaceans seen.

Acknowledgements

Many thanks to all those who have submitted sightings for inclusion in this report, especially Jim and Geoff Blake, Heather Thorogood and Anne Cahill.

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MARINE MAMMALS AND MARINE REPTILES REPORT 1998

TABLE 1 : note D = heading, DS = estimated distance from shore

Date	Time	Species	Total	D	Ds	Tide	Sea	Location	Notes	Observer/Recorder
13/3	-	Harbour porpoise	1	-	-	-	-	Rocken End	Stranded	M Green
21/4	1200	Bottlenose dolphin	3	NE	1km	high	slt	Dunnose Point	Heading towards Sandown Bay at 6/8 knots	G Blake
May	-	Seal	1	-	-	-	-	Newtown Hbr		D Flannigan
9/5	0730	Bottlenose dolphin	1	E	600m	-	slt	St Caths Pt		D Hunnybun
31/5	1600	Bottlenose dolphin	2	NE	1km	ebb	slt	SE of Ventnor	Travelling fast Gulls overhead	G Blake
2/6	0500	Dolphin	3	-	-	-	-	off Shanklin	-	M Farah
27/6	-	Common dolphin	1	-	-	-	-	Blackgang	Live stranding (see report)	H Thorogood
Aug	-	Dolphin	1	-	-	-	-	Needles	-	A Bravery
14/8	1500	Loggerhead turtle	1	W	3km	flood	slt	NE of Cowes	1.2m long Seen east of Bramble Bank	M Blake
1997 late report										
8/5	0600	Common dolphin	5	E	500m	-	slt	St Caths Point	-	M Buckley

Proc. Isle of Wight nat. Hist. Archaeol. Soc **15** (pub 1999): 79 - 81

ISLE OF WIGHT FRESHWATER REPORT FOR 1998

Michael J. Ashdown

Introduction

This year, the section had four meetings at three freshwater sites: a drainage ditch and part of Scotchell's Brook in Alverstone Mead Nature Reserve, a pond on Bleak Down and a drainage ditch and large pond in Afton Marsh Nature Reserve. Selected chemical measurements of water quality were made in addition to records of aquatic fauna and flora, the latter including marginal species.

Alverstone Mead

One site, sampled on 28th March, was in a drainage ditch in the south east part of the reserve, near Lake golf course (SZ 581850). This location was chosen as low quality water may drain into here from a nearby field which had been improved and stripped to supply turf. The second site, sampled on 20th June was Scotchell's Brook where it runs along the Friends of the Earth reserve. Water samples from both sites have been tested using a Merck 'Aquamerck' water test kit. Readings for nitrate $N0_3^-$ and phosphate $P0_4^{3-}$ were similar, although the latter was higher in the ditch and both had high levels of suspended solids. Species found included flatworm, leeches, water hoglouse, freshwater shrimp, mites, water fleas, mayfly and damselfly nymphs, corixid water boatmen, alderfly and caddis larvae. Interestingly two water hoglouse species occur at Alverstone, *Asellus aquaticus* and *A. meridianus*. Both are widely distributed in Britain in habitats ranging from stagnant polluted water to clear running systems (Gledhill, 1976). *A. meridianus* is typically found on offshore islands and is the only species on Lundy, Skokholm, the Scilly Isles and Isle of Man. Detailed results of the two Alverstone surveys will be published at a later date, together with data from two planned surveys for 1999. These will include chemical tests on water quality and pollution assessments based on biotic index calculations.

Bleak Down

This small pond, sampled on 5th September is located in gorse-covered heath on a disused landfill site below Rookley (SZ 512818). At the time of sampling, the margins were shaded by willow, gorse and birch. A small island/peninsula extended into the centre of the pond and this was largely covered in tall scrub. Considerable tree debris from clearance work had been left on the pond margins and in the water. Some oily patches were seen on the surface and a thick layer of silt present, much of it covered with a mixture of water moss, milfoil and crowfoot. The water milfoil found is the less common *Myriophyllum alterniflorum*, an island rarity. There was no sign of any fish which partially explains the diverse community of freshwater invertebrates found. A number of birds were noted in the vicinity; ducks in particular have been seen flying on to or off the pond. Aquatic fauna was collected by sweeping through vegetation and open water with a standard size net. Species identified included *Hydra sp*., Wandering Snail, *Lymnea peregra*, pea mussels, *Pisidium sp*., a mayfly nymph, *Clöeon dipterum*, a leptocerid cased caddis-fly larva, Screech Beetle, *Hygrobia hermanni* and numerous chironimid and chaoborid midge larvae. A number of bugs were found including the Saucer Bug, *Ilyocoris cimicoides*, two greater water boatman species, *Notonecta glauca* and *N. marmorea viridis* and three lesser water boatman species - *Corixa punctata, Sigara distincta* and *Callicorixa praeusta*. Also present in the samples taken were nymphs of the dragonfly *Sympetrum sanguineum*, the Ruddy Darter and damselflies *Pyrrhosoma nymphula*, the Large Red Damselfly and *Coenagrion puella*, the Azure Damselfly. Crustacea were conspicuous by their absence. When revisited on the 18th of October, water samples were investigated using 'Aquamerck' test reagents. A degree of eutrophication was evident, with readings for nitrate, nitrite and ammonia of 25 mg/l NO_3^-, 0.10 mg/l $N0_2^-$ and 0.4 mg/l NH_4^+. Apparently there has been considerable silting-up over the last few years (Colin Pope, personal communication) and

decomposing brash in the pond margins would not have improved water quality. Some of the species found are characteristic of the pond as it would have been before the water quality deteriorated. Others, such as *Hygrobia hermanni* are typically found in silted-up ponds (Friday, 1986).

Afton Marsh

The first site, sampled on 24th October, was a drainage ditch along Black Bridge Road, next to the footpath entering the southern part of the Afton reserve (SZ 346862). This ditch curves into the reserve, partly running into a small, shallow, silt-laden pond choked with Fool's Water-cress. The ditch was partially shaded by recently cut back willow and Norfolk Reed. Due to the heavy rain at that time, the current was fast and the water heavily loaded with suspended material. Consequently water quality tests could have been misleading and none were made. Kick-sampling of the ditch with a standard size net was used to collect aquatic fauna. Large numbers of Jenkins' Spire Shell, *Potamopyrgus jenkinsi*, pea mussels, *Pisidium sp*., Freshwater Shrimp, *Gammarus pulex*, Water Hoglouse, *Asellus aquaticus* and several species of chironimid larvae were found in the sample. Also present were flatworms, *Polycelis* sp, the leech *Erpobdella testacea*, several tubificid worms, Wandering Snail, *Lymnea peregra*, a crane-fly larva, *Yamatotipula lateralis* and a phantom crane-fly larva, *Ptychoptera* sp. One limnephelid caddis larvae, *Limnephilus stigma* had to be reared in an aquarium for several weeks until large enough to identify. This species is characteristic of marshy areas that dry up in summer (Wallace et al, 1990). Previous finds in this area have included *Hydra*, another flatworm, *Dugesia lugubris*, the leeches *Glossiphonia heteroclita* and *G. complanata*, the Water Scorpion *Nepa cinerea*, Water Cricket, *Velia caprai*, a pondskater *Gerris sp*. and Common Frog, *Rana temporaria* and their spawn. Despite its size and appearance, the ditch has a higher species diversity than might be anticipated.

The second site, north of the bridge is a large pond with margins dominated by Norfolk Reed and edges shaded by willows and other broad-leaved trees. Large amounts of Hornwort, *Ceratophyllum demersum* were found in the southern end of the pond and the water was fairly clear, despite the recent high winds and heavy rain. A single sample taken from here included some of the species found in the ditch, such as *Potamopyrgus jenkinsi, Lymnea peregra, Pisidium* sp. and chironimid midge larvae. Additional species included Keeled Ramshorn, *Planorbis carinatus*, Button Ramshorn, *Planorbis leucostoma*, a mayfly nymph, *Clöeon dipterum*, Screech Beetle, *Hygrobia hermanni*, limnephilid and leptocerid caddis larvae and a lesser water boatman, *Callicorixa praeusta*. Further work on this site would be useful.

Future Work

The intention is to expand the programme next year with more frequent meetings and shift the emphasis towards monitoring water quality. This will involve chemical testing and calculation of biotic indices - BMWP values, ASPT scores and gathering data suitable for RIVPACS calculations (River Invertebrate Prediction and Classification System). The RIVPACS computer software compares observed BMWP data with predicted BMWP scores - see Wright et al. (1994) for further details. It requires species records, data on location and underlying substratum and various physicochemical measurements. Unfortunately this can only be used with flowing water.

Acknowledgments

I would like to thank Roger Herbert, Colin Pope, freshwater section enthusiasts and other Society members for their help and encouragement.

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ISLE OF WIGHT MARINE BIOLOGICAL REPORT 1998

Roger J. H. Herbert

The following report includes records of marine algae, invertebrates and fish obtained during 1998. Details of marine mammal observations are published elsewhere in the Proceedings.

Invertebrates

On 5th of February, a large specimen of the clam *Mya arenaria* was found within mudflats of the Medina estuary adjacent to the Medina Valley Centre. The specimen had a shell length of 13.5 cm and is by far the largest found in recent years. Judging by the number of empty shells that can be found in the estuary, the species was once common, and individuals of this size must have been frequent. It may be that the population had declined following the introduction of tributyltin (TBT) antifouling paints, and is now recovering since the ban imposed on most leisure craft in 1987.

Throughout the year, large oysters (*Ostrea edulis*) could be found intertidally at Bembridge. The animals were alive, but must have been washed in from offshore.

On July 1st, three individuals of the spectacular marine flatworm *Prostheceraeus vittatus* were found in shallow pools at Bembridge. Two of these were found on *Sargassum* plants. There have only been three previous records for the Island: subtidal at Bonchurch and intertidally at Bembridge in 1988 and 1991 (Herbert, 1993). A very yellowish specimen of the nudibranch *Aeolidiella alderi* was found on the same day.

Noteworthy during the summer months were the prolific growths of sponges and tunicates seen at Bembridge beneath small boulders in shallow water. The frequency and size of *Morchelium argus, Ascidiella* spp. and *Didemnum* spp. must be the highest ever seen.

Fish

A Cod of 42lb was caught in January. The fish produced 20lbs of edible flesh when filleted but had very little in the way of food in its stomach (Isle of Wight County Press January 9 p51). In July a marbled electric ray *Torpedo marmorata* was caught off the Islands south-west coast and was taken to the Fort Victoria marine aquarium. This is the second record I have for the Island, the first being in 1995 (Herbert, 1997). Other southern species were well evident during the year with captures of Gilthead Bream *Sparus aurata* at Ryde and Trigger Fish *Balistes carolinensis* off the Needles. At the Coastal Visitor Centre in October, I noticed an unusual looking goby in the aquarium. Upon further examination it was identified as the painted goby *Pomatoschistus pictus*. This species is reported to be widely distributed around the U.K except for the east coast, however I have no records for local waters. The fish was apparently caught off Ventnor. During December there was an exceptionally large number of small cod (six to seven pounds) caught both off the Islands south coast and in the Solent.

National Federation of Sea Anglers (IOW Division) fish weight records broken during the end of 1997 and in 1998 were as follows:

Shore Caught

Species	**Date caught**	**Location**	**Weight**
Brill *Scophthalmus rhombus*	May 19th 1998	Unknown	2lbs 8.5oz
Ballan wrasse *Labrus bergylta*	July 1998	Ventnor	5lbs 8oz

Boat Caught

Species	**Date caught**	**Location**	**Weight**
Herring *Clupea harengus*	December 1997	Bembridge	10oz
Spurdog *Squalus acanthias*	11th November 1998	off Nab Tower	19lbs 8.5oz

Acknowledgements

Many thanks to all those who have submitted records for inclusion in these reports especially, anglers Alan Bravery, Chris Pledge & NFSA recorder Roger Chandler.

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NATURE NOTES

THE WASP SPIDER ON THE ISLE OF WIGHT

A report on the Wasp Spider (*Argiope bruennichi*) appeared in the Proceedings for 1998. At that time, there had been very few records from the south side of the Island. A further record has come to light. Mr C. Holland saw three in the landslip at Compton on 27th July 1998.

The species is often difficult to refind on sites in subsequent years but Bembridge Spit is clearly an important site for the species at the moment. It was reported from here by Ann Campbell in 1997. She decided to carry out a systematic search of the area with her daughter in 1998 and on 8th August they counted 102 females and 8 males in an area of approximately 40 square meters The individuals they took to be males were lurking on the perimeter of the webs. Much smaller than the females, they were dark brown with two narrow cream vertical stripes,similar legs to the females and "boxing-glove" palps.

Colin Pope

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METEOROLOGICAL REPORTS FOR SHANKLIN : 1997 & 1998

Clive Cooper

Abstract

Shanklin Weather Station was established approximately 50 years ago. It is classed as a Health Resort Station and is owned and maintained by the Isle of Wight Council. The station is situated at The Mead, a park area just past Shanklin 'Old Village', towards the outskirts of the town and is 50 feet above sea level. The station is a simple one consisting of a 5" standard rain gauge and a Stevenson's Screen equipped with four thermometers. Readings and observations are taken twice daily at 09.00GMT and 17.00GMT. The Campbell Stokes sunshine recorder is located on the roof of Shanklin Theatre, which is the highest point in the town at 180 feet above sea level, and readings are taken here at 17.00GMT.

1997

Temperatures

The yearly average temperature was above normal at 11.1°C, the long-term average being 10.7°C. January was 2.8°C below the long-term average. May and July were also below average of 0.4°C and 0.1°C respectively. The other nine months all had a positive anomaly. November with 1.7°C above average, August with 1.6°C, February with 1.4°C and December with 1.0°C had the largest positive anomalies. The year started cold, January having a mean temperature of 2.9°C, long term average being 5.7°C. The month included 5 days when the maximum temperature failed to exceed freezing point. The air temperature fell below freezing on 13 nights in January, the total of air frosts for the whole year was 18. The last air frost occurred on the 21st April with a temperature of -1.2°C. The first air frost pertaining to the Autumn/Winter 1997/98 occurred on 3rd December with a night minimum temperature of -0.5°C.

The temperature exceeded 21.1°C on 39 days, the long-term average being 32 days. The highest temperature occurred on 18th August and was 26.5°C. The maximum temperature exceeded 21.1°C on 22 days in August; the mean temperature for this month was 18.7°C compared to the long-term average of 17.1°C. The year's highest minimum temperature was 17.6°C occurring overnight on 11th/12th August. The lowest maximum temperature was -1.9°C on 2nd January and the lowest minimum temperature, -5.0°C, occurred overnight 1st/2nd January.

Rainfall

The rainfall for 1997 amounted to 854.6mm. The three driest months were September with 10.1mm, July with 13mm and January with 15.5mm. This represented 13%, 28% and 17% respective monthly negative anomalies. The wettest months were November with 168.9mm, August with 143.6mm, December with 114.5mm and June with 101.4mm. This represented 157%, 225%, 122% and 191% respective monthly positive anomalies.

An amount of rainfall totalling 25.4mm or more in a 24hour period ending at 0.900gmt occurred on 4 days; 3rd March with 25.5mm, 5th August with 30.3mm, 27th August with 38.9mm and 8th October with 26.7mm.

There were three periods of drought in 1997, defined as 15 or more consecutive days without measurable rainfall. These were 27th March to 23rd April, 5th July to 23rd July and 21st September to 5th October.

Sunshine

The total sunshine hours for 1997 was 1987.4, slightly above the average total of 1872.5. The sunshine hours for the three summer months June, July and August totalled 680.5. This included the sunniest month of the year July, with 297.1 hours, 48 hours more than the long-term average. The sunshine total for June was only 173.9 hours, a deficit of 70 hours on the long-term average and August had a deficit of 17 hours on the long-term average with a total of 209.5 hours.

Spring was sunny compared to the long-term average of 572.2 hours. The three months March, April and May produced 681.5 hours of sunshine - 1 hour more than the three summer months. May alone had 289.7 hours of sunshine.

Between 1 May and 30 September there were 60 days with 10 or more hours of sunshine - 2 more days than the long term average.

The dullest month was January with a total of only 35 hours. The sunniest day was 24 May with 14.8 hours.

Miscellaneous Phenomena

Thunder

Thunder was heard on 12 days compared to the average of 10. This occurred on 4 days each in June and August, 2 days in November and 1 day each in May and October.

Hail

Hail fell on 7 days, 6 in November and one in February.

Snow

Snowfall occurred on 9 days - 8 in January and one in December. All the falls were slight. On 17 December the Shanklin current temperature at 0.900GMT was 3.5°C in moderate rain, meanwhile parts of the Island were experiencing moderate snowfall. At 16.00GMT snow could be seen lying on Brading Down.

Monthly Summary of Weather at Shanklin 1997

Month	Hours of Sunshine	Rainfall (mm)	Mean Max °C	Mean Min°C	Mean Monthly °C
January	35.0	15.5	5.1	0.8	2.9
February	56.7	83.5	9.3	4.9	7.1
March	136.9	34.0	11.3	5.3	8.3
April	254.9	17.5	13.1	4.9	9.0
May	289.7	52.4	15.2	8.0	11.6
June	173.9	101.4	17.4	11.4	14.4
July	297.1	13.0	20.3	12.9	16.6
August	209.5	143.6	22.2	15.3	18.7
September	216.7	10.1	19.0	11.7	15.3
October	162.1	100.2	15.7	9.1	12.4
November	81.8	168.9	12.6	7.6	10.1
December	73.1	114.5	9.8	4.8	7.3
	Total sunshine	**Total Rainfall**		**Annual Means**	
	1987.4	854.6	14.2	8.0	11.1

1998

Temperatures

The yearly average temperature was above normal at 11.0°C, the long-term average being 10.7°C.

January, February and March were all warmer the long-term average with average temperatures of 0.9°C, 1.2°C and 0.9°C respectively above the long-term average. April was 0.4°C below the long-term average and the average temperature for April of 8.1°C was lower than March where the average temperature was 8.4°C.

On average spring was warmer than normal mainly due to May being 1.9°C warmer than the long-term average. The summer months were rather disappointing with June, July and August all having negative anomalies of 0.1°C, 1.1°C and 0.3°C respectively. Autumn was about average in respect of temperatures as the positive anomalies experienced in September and October of 0.8°C and 0.2°C were offset by the negative November anomaly of 0.7°C. December was milder than normal with a positive anomaly of 0.8°C. The maximum temperature for the first ten days averaged 7.3°C. The month turned milder from 11th/12th and the night minimum average temperature was 7.3°C with the daytime temperature averaging 11.0°C for the period 11th – 20th December.

The highest temperature, 27.5°C, was recorded on 11th August. On the previous day the temperature reached 27.4°C, the first time the temperature had exceeded 26.6°C (80°F) since 22 August 1995. The lowest temperature, -4.9°C, occurred overnight 1st/2nd February with the lowest maximum temperature, 3.0°C, being recorded on 1st February. The highest overnight minimum temperature, 16.9°C, was recorded for 10th/11th August.

The temperature exceeded 21.1°C on 22 days - 10 days less than the long-term average. There were 11 days in August, 8 days in May and 1 day each in June, July and September when the temperature reached 21.1°C or above.

The latest spring frost in 1998 with a recorded temperature of -0.8°C occurred on 13th April. The first frost of the winter 98/99 occurred on 24th November with a temperature of -0.1°C being recorded. There was a total of 15 frosts in 1998 - 3 in January, 4 in February, 1 in April, 1 in November and 6 in December.

Rainfall

The total number of rain days in 1998 was 165, giving a total rainfall for the year of 950.6mm.

The three driest months were February, August and May with 10.9mm, 18.5mm and 18.7mm. This represented 17%, 29% and 34% respective monthly negative anomalies.

The five months with the highest total of rain were October with 153.4mm, December with 138.1mm, September with 112.4mm, January with 110.2mm and April with 107.6mm. This represented 175%, 148%, 146%, 120% and 191% respective monthly positive anomalies.

An amount of rainfall totalling 25.4mm or more in a 24-hour period ending at 0900gmt occurred on three days, 29.9mm on 24th October, 37.9mm on 31st October and 38.6mm on 8th December.

There were two periods of drought, defined as 15 or more consecutive days without measurable rainfall. These were 20th January to 5th February and 2nd May to 26th May.

Sunshine

The total sunshine for 1998 was 1928.1 hours which is fractionally above the long-term average.

The sunshine values for the summer months totalled 732.9 hours comprising June, July and August figures of 203.1 hours, 228.2 hours and 301.6 hours, representing 83%, 91% and 132% of the long-term average.

The three spring months of March, April and May produced a total of 548.3 hours of sunshine which was 23.9 hours below the long-term average and represented 75%, 83% and 117% of the long-term average.

The month with the highest monthly positive anomaly was November which produced 122.4 hours of sunshine and represented 152% of the long-term average.

As in 1997, May was the second sunniest month with 283.7 hours of sunshine recorded. The sunniest day was 17th May with 14.4 hours of sunshine recorded.

Between 1st May and 30th September there were 54 days with 10 or more hours of sunshine, 4 days below the long-term average.

Miscellaneous Phenomena

Thunder

Thunder occurred on 7 days compared to the long-term average of 10 days. There were 4 days in January, 2 days in May and one day in October.

Hail

Hail occurred on 9 days of the year. This was equal to the long-term average and was comprised of 3 days in January, 2 days in April, one day in September, 2 days in October and one day in December.

Snow

Snow fell on only 2 days compared to the long-term average of 6 days. Both snowfalls were in April, on the 13th and 15th. The fall on the 15th led to a slight accumulation of snow.

Monthly Summary of Weather at Shanklin 1997

Month	Hours of Sunshine	Rainfall (mm)	Mean Max °C	Mean Min°C	Mean Monthly °C
January	88.4	110.2	8.9	4.3	6.6
February	118.4	10.9	10.0	3.9	6.9
March	106.5	89.0	11.0	5.8	8.4
April	158.1	107.6	11.0	5.2	8.1
May	283.7	18.7	18.4	9.4	13.9
June	203.5	80.4	16.8	11.6	14.2
July	228.2	54.9	18.6	12.7	15.6
August	301.6	18.5	21.0	12.6	16.8
September	164.3	112.4	18.4	12.5	15.4
October	107.9	153.4	14.8	9.4	12.1
November	122.4	56.5	10.3	5.1	7.7
December	45.1	138.1	9.5	4.7	7.1
	Total sunshine	**Total Rainfall**		**Annual Means**	
	1928.1	950.6	14.0	8.1	11.0

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METEOROLOGICAL REPORTS FOR SHANKLIN : 1997 & 1998

Editors note : Since 1979 weather records have been published in these *Proceedings* from the weather station at Ryde. Prior to this, papers were received from Ryde, Ventnor and Shanklin for the entire history of the Society and before with the *Proceedings* in 1920 referring to annual data collected since 1908. We would like to thank Mr A. Renton Hudson for his work at Ryde and to thank Mr Cooper for taking on the tradition.

NOTES FOR THE GUIDANCE OF AUTHORS

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Contents