THE BRITISH ISOPODA STUDY GROUP

Newsletter of the Isopoda Survey Scheme

No. 14 May 1981

INTRODUCTION

This must be the biggest and best BISG Newsletter ever! It is devoted to the proceedings of the Colloquium on Woodlice organised by George Fussey. George and Heather are to be thanked for all their work and forethought. The consensus of the meeting was that annual gatherings of woodlousers (nom. nov.) could be addictive.

PROCEEDINGS OF THE BISG COLLOQUIUM AT ROBIN HOOD'S BAY, APRIL 1981

edited by George Fussey

The following papers are arranged in the order in which they were given on Saturday, 11 April.

THE PRESENT NON-MARINE SCHEME - ACHIEVEMENTS AND RESULTS

by Paul T Harding

Progress

The origins, organisation and progress of the non-marine scheme were described in the provisional atlas. Since then, considerable progress has been made and coverage of Britain and Ireland has improved greatly. Data contributed over the last 12 years by some 500 recorders are now on computer file at the Institute of Terrestrial Ecology's Biological Records Centre at Monks Wood. Over 22,000 individual species records are on file and at least 1,000 records have yet to be put on computer file. Using the Monks Wood computer, listings of all records for each species have been compiled, and updated draft 10 km. square distribution maps have been produced. Analysis of the habitat data is not possible using the small computer at Monks Wood. Computing facilities at Salford University are being used by Dr Colin Fairhurst to handle the habitat data on non-marine isopods, millipedes and centipedes. Interim summaries have been made of the habitat data for most species.

1981 - The last year

The present phase of recording will finish at the end of 1981. This year is the one in which we must attempt to survey as many as possible of the unrecorded parts of Britain. The map (Figure 1) shows those 10 km. squares from which records have been received. At the Colloquium several people undertook to attempt to survey unrecorded 10 km. squares in East Anglia, Yorkshire and Orkney. It is improbable that "complete" coverage will be achieved in 1981, nor is this necessarily desirable, but if you can attempt to survey a few unrecorded squares this will be most valuable.

The table summarises the number of records of each species currently on computer file. Please note that this is not a summary of the number of 10 km. squares from which each species has been recorded; in some cases there are many records of a species from a single square. It is immediately obvious that there is a bias of records for 4 widespread and common species (Oniscus asellus 23.4%, Porcellio scaber 19.5%, Philoscia muscorum 13.9% and Trichoniscus pusillus 13.1%) making nearly 70% of the total records. Some apparently widespread but less common species (Haplophthalmus species, Ligia oceanica, Metoponorthus pruinosus and Trichoniscus pygmaeus) are clearly under-recorded. The text of the provisional atlas and items in this and earlier newsletters provide useful hints on how to find some of the less common species.

TABLE: Number of individual records of each species currently held on computer file. Records received up to December 1980 only.

Acaeroplastes melanurus	1	Miktoniscus patiencei	12
Androniscus dentiger	534	Oniscus asellus	5174
Armadillidium album	40	Oritoniscus flavus	46
depressum	72	Philoscia muscorum	3068
nasatum	106	Platyarthrus hoffmannseggi	404
pictum	7	Porcellio dilatatus	45
pulchellum	78	laevis	27
vulgare	1633	scaber	4321
Cylisticus convexus	113	spinicornis	296
Eluma purpurascens	34	Trachelipus rathkei	72
Halophiloscia couchi	31	Trichoniscoides albidus	8
zosterae	5	saeroeensis	26
Haplophthalmus danicus	114	sarsi	10
mengei	224	Trichoniscus pusillus agg.	2902
Ligia oceanica	622	provisorius	68
Ligidium hypnorum	98	pusillus	23
Metatrichoniscoides celticus	5	pygmaeus	443
Metoponorthus cingendus	295		
pruinosus	149	TOTAL	22116

PLEASE SUBMIT YOUR 1981 RECORDS TO PTH AT MONKS WOOD AS SOON AS POSSIBLE AFTER THE END OF THE FIELD SEASON, AND BY 15 JANUARY 1982 AT THE LATEST.

Results

A great deal of work has gone into the recording scheme over the last 12 years, and plans are being formulated for making the results available.

1981: *A preliminary review of the occurrence of Asellus in Britain and Ireland*

Professor Moon and PTH have collaborated to review the occurrence of the 4 species of Asellus. Distribution maps are included. Printing has been delayed because of industrial action (!) but the review will be distributed to all BISG members as soon as it is available.

1981/82: *Atlas of Irish Woodlice*

The Irish Biological Records Centre has agreed to publish an atlas of Irish woodlice compiled by Declan Doogue and PTH. The availability of this atlas will be publicised in the next newsletter.

1983: *Atlas of Woodlice of the British Isles*

An atlas summarising the distributions and habitat preferences of all the native and naturalised species of woodlice will be prepared during 1982. It is hoped that this will be published by the Institute of Terrestrial Ecology. Contributions will be invited from recorders with particular experience of given species. We want to have the Atlas published in time for the 1983 Symposium. To ensure that this is possible, please let PTH have your 1981 records sooner rather than later!

In the fullness of time!:

The habitat and distribution data from the isopod and myriapod schemes provide many opportunities for analyses. It is hoped that those involved with the initiation and running of the schemes will collaborate to analyse and appraise the results of the surveys.

Discussion

Although this was meant to be a discussion section, Paul talked for 45 minutes, so there was little time for discussion. Much of what was discussed related to points highlighted by the Table and by the various maps showing progress. The more important points were raised again in the next session.

DISCUSSION: A CONTINUING SCHEME - AIMS AND PROSPECTS

Chair: Paul Harding

George Fussey led the discussion by presenting a list of the possible aims of a continuing scheme now that it had become clear that the objectives of the current scheme (see list in Sutton, 1972) had been, to a large degree, reached. The possible aims were as follows:

1. To continue to provide an introduction for new enthusiasts and to maintain a pool of available expertise, possibly on a regional basis.

2. To maintain general recording at some level to be decided, so that brief updates of the atlas can be produced when necessary.

3. To use the database gained from the scheme to identify particular and worthwhile fields of study (referred to as 'sub-schemes').

4. To continue to produce a newsletter on a regular basis, and to organise meetings and workshops.

After emphasising that this list was meant to be neither comprehensive nor inclusive, he proceeded to give examples of some sub-schemes:

a) to direct searching activity into particular habitats, e.g. supralittoral zone.

b) to search specifically for certain species, either rare or incompletely recorded, e.g. Trichoniscoides spp., Asellus spp.

c) to elucidate the distribution of T. pusillus ff. using the sex ratio criterion (ongoing).

d) to collect basic ecological data, e.g. sex ratios, breeding seasons.

e) to map the incidence of P. hoffmannseggi in ants' nests.

f) to describe and map colour morphs of some species.

The discussion was then thrown open. The 4 points were generally accepted, together with the following addenda:

1. Any future scheme or sub-scheme must collect data that is relevant, and for which processing facilities and funds are available, i.e. the data must be manageable.

2. From Autumn 1982 George Fussey would take over from Paul Harding as BISG/BISS coordinator.

3. That a BISG reference collection be set up and held by the coordinator. The British Museum (N.H.) do not hold a reference collection at present.

4. Sub-schemes could best be organised by individuals and promoted through the Newsletter; most such sub-schemes simply require an increased awareness of a particular problem in the minds of a relatively small number of recorders in order to get off the ground.

5. Newsletters should be produced at least annually, and should also provide a forum allowing for the exchange of specimens (on a permanent or temporary basis) between collectors.

6. Attempts should be made to secure new funding.

7. Though the present record cards were widely commended the need for certain modifications had become apparent. The meeting agreed that PTH and GF should meet together with Colin Fairhurst (of the Myriapod Survey Scheme) to discuss and formulate any changes which could then be put to a future workshop (see 12 below).

8. The problems of storage of specimens by a coordinator was raised, and it was suggested that the charitable nature of certain institutions could be explored. ITE could provide storage facility for record material.

9. The coordinator should act as a central clearing house for all records. Specimens difficult to identify could then be forwarded to the appropriate expert.

10. Though ITE could still produce and mail the newsletter free of charge, the funding of such items as postage (see 9 above) should be met by attempts to secure new funds and, at worst, a 'voluntary' fund donated by recorders could be set up. Additionally, Stephen Sutton kindly offered to allow monies from the sale of his offprinted key to be put towards BISG funds. His offer was gratefully received by the meeting.

11. The meeting noted that the following species might benefit from further study, namely:

Armadillidium album
A. pictum
A. pulchellum
Cylisticus convexus
Halophiloscia spp.
Haplophthalmus spp.
Ligia oceanica
Ligidium hypnorum
Metoponorthus spp.
Miktoniscus patiencei
Oritoniscus flavus
Platyarthrus hoffmannseggi
Porcellio dilatatus
P. spinicornis
Trachelipus rathkei
Trichoniscoides spp.
Trichoniscus ff.
T. pygmaeus

These were chosen for various reasons, some in particular being

a) Under-recorded in certain habitats (e.g. P. dilatatus from chalk downland, P. spinicornis from buildings, Ligia from tidal estuaries).

b) under-recorded from geographic areas (e.g. Ligia from the east coast, Ligidium from western England),

c) supposedly rare (e.g. Trichoniscoides spp. now seemingly in the same position that H. mengei was in 1972 (only 6 records at that time, but now numbering over 200).

12. A provisional invitation for a BISG meeting at Cardiff in Easter 1982 was given by Graham Oliver, and enthusiastically received by those present.

1933 LONDON ISOPOD SYMPOSIUM

An international symposium on the 'Biology of Terrestrial Isopods' is being planned. It will be held under the auspices of the Zoological Society of London and will be organised by Drs S L Sutton and D M Holdich. The most likely date is the second week in July. There will be two days of formal presentations of recent research, plus one or two days of workshop sessions on topics of general interest such as 'sampling techniques', 'distribution studies' and 'woodlice in education'.

This will be the first symposium ever to be held on woodlice, and it is hoped to attract all the active workers in the field from both this country and abroad. Further details available from:

Dr S L Sutton
Dept of Pure and Applied Zoology
Baines Wing
The University
Leeds LS2 9JT
England.

NEW SPECIES OF WOODLICE TO THE BRITISH ISLES

Stephen Sutton introduced an open forum in which Paul Harding mentioned the occurrence of Halophiloscia zosterae in Devon, Essex and Norfolk (see Crustaceana (1980) 39, 111) and a species of Miktoniscus from many localities along the southern coasts of Ireland and Britain, from Co Cork to Kent. Stephen Sutton and Graham Oliver announced that they are now agreed that the species concerned is Miktoniscus patiencei Vandel. Material collected by Alison Trew on Guernsey had helped to settle the matter. A paper describing material from the British Isles is in preparation. Graham Oliver and Alison Trew referred to the species they have described as new to science, Metatrichoniscoides celticus, from the South Wales coast (see Journal of Natural History (1980) 15, 525). However, Graham stole the show with the following account of a very recent find.

BUDDELUNDIELLA CATARACTAE VERHOEFF 1930 IN SOUTH WALES

On 6 April 1981, while tidying my garden I collected two minute woodlice. They appeared as slow moving pinkish-brown forms which rolled into a ball when disturbed. Initially I regarded them as newly released stadia of Armadillidium depressum which is very common in Cardiff gardens. It was, however, rather early in the year for them to appear and the colouration was not typical.

The larger specimen was only 2 mm in length and under the microscope the exaggerated haplophthalmoid tergal sculpture was strikingly obvious. These ridges, in combination with the ball forming habit, led to the genus Buddelundiella. Using Vandel (1960), on the basis of the tergal sculpture, it was possible to identify to the species level. The Cardiff specimens have 3 pairs of ridges on the 7th pereonite and the only sculpture on the pleon is 2 pairs of low ridges on the 4th pleonite. This combination occurs only in B. cataractae.

The microsite was under a large stone which had lain unmoved for at least a year. A layer of soil and plant remains had accumulated in which B. cataractae and many other soil invertebrates were present. Other isopods included Trichoniscus pygmaeus and Androniscus dentiger.

Vandel (1960) and Gruner (1966) describe a sporadic distribution for B. cataractae over the European continent, apparently based on few records. The range includes Dalmatia, Corsica, Majorca, Marseille, South-west Germany, Budapest and Helsinki. Both authors suggest that this pattern is indicative of introductions through human activity and the origin of the species remains unknown. The appearance in a Cardiff garden also suggests an introduction. This species clearly survives the Cardiff climate as there are no glass-houses nearby from which it could have strayed and, therefore, it may become established. B. cataractae is, however, doubly difficult to find because of its size and ball forming habit which renders it almost identical to a sand grain when disturbed. The sporadic distribution may, therefore, only reflect the small number of fortuitous findings.

Gruner, H.E. 1966. Krebstiere oder Crustacea V Isopoda. Die Tierwelt Deutschlands. Teil 53.

Vandel, A. 1960. Isopodes Terrestres. Faune de France 64: 1-146.

Graham Oliver

RECENT RESEARCH ON THE ECOLOGY OF ISOPODS - "WORK AT LEEDS UNIVERSITY AND THE UNIVERSITY OF EAST ANGLIA"

Stephen Sutton introduced the background to the work that has been done over the last 13 years based initially at Leeds but now with an extension at East Anglia. Four papers were read, but unfortunately it has not been possible to include the first two: "The population dynamics of isopod species at Spurn Point, Yorkshire" by Bob Davis, and "Feeding biology of isopods: work at UEA and Leeds" by Mark Hassall.

THE SUBSPECIES PROBLEM IN *TRICHONISCUS PUSILLUS*

by George Fussey

Though T. pusillus agg. is one of the commoner elements of the woodlouse fauna in the British Isles, it presents the isopodologist with some very real difficulties both in terms of its taxonomy and ecology.

According to Legrand, Strouhal and Vandel (1950) the species consists of 3 subspecies, namely pusillus, provisorius and alticola. Of these only the first two occur in Britain and the taxonomic problems arise from the fact that while provisorius is bisexual, pusillus is an obligate parthenogen probably derived from one or both of provisorius and alticola. Because of this difference in genetic systems (i.e. between a population of potentially interbreeding males and females and an all female population of reproductively (genetically) isolated clones, respectively), taxonomists such as Mayr (1970) and subsequently Enghoff (1976) recommend that the biospecies concept (essentially that members of the same species should be able to interbreed) should not be applied to related bisexual and parthenogenetic organisms and that instead the term form should be used; in any case, the subspecies description is incorrectly applied within T. pusillus since the different forms are not geographically separate. It is recommended, therefore, that the two British forms should be referred to as T. pusillus f. pusillus Brandt 1833 and T. pusillus f. provisorius Racovitza, 1908 (Fussey and Sutton, 1981).

Notwithstanding these taxonomic difficulties, there are also problems to be found in the precise identification of the two forms. Though Frankel (1978, 1979a, b) has shown differences between the 2 forms in the size of certain juvenile stadia and the relationship between number of embryos carried and female size, both methods are restricted to certain portions of the population. Even the difference in the shape of the exopodite of the first male pleopod (see Sutton, 1972) has its limitations because parthenogenetic males occur at a frequency throughout Europe approaching 1% (Gruner, 1966). To some extent the rarity of these males has, in the past, led to the notion that the bisexual form is commoner than it really is (68 records of f. provisorius against 23 of f. pusillus, Harding, this colloq.).

The best available method for identifying the two forms is the sex ratio of a numerically large sample of an aggregate of T. pusillus taken from a distinct microsite. This, however, relies on assumptions regarding the sex ratio in the two forms and most particularly in f. provisorius. Woodlouse sex ratios are notorious for their poor conformity to a 1:1 sex ratio (e.g. see data in Vandel, 1960, and also Howard, this colloq.), and workers such as Vandel (1938), Howard (1962, 1958) and Legrand et al (1980), detail the incidence and possible genetic control of monogeny, a term which describes the situation where females can give birth to broods with extremely biased sex ratios. Such a phenomenon might be seen as undermining the use of sex ratio as a criterion for describing the composition of T. pusillus agg. until it is realised that the net effect of any skewed ratios within broods might, when summed throughout a population, lead to a balanced and stable sex ratio (e.g. Johnson, 1977; Howard, this colloq.). Indeed, it is a well established fact in population genetics that selection can act at the population level to maintain sex ratio (though not necessarily at 1:1) qv. Fisher (1930). In the bisexual form of T. pusillus the work of Vandel (1938) and Frankel, Sutton and Fussey (1981) leaves little doubt that the tertiary sex ratio (i.e. sex ratio of newly independent non-breeders) is 1:1. This fact allows us to determine for a given site the composition of T. pusillus agg. at a given site: pure f. provisorius populations have 1:1 sex ratios, pure f. pusillus populations have few, if any, males and mixed populations have intermediate sex ratios. Over the past two years a survey has been carried out using this criterion (Fussey, 1979) by members of the British Isopoda Study Group and funded by NERC. The results have been particularly encouraging and serve to illustrate the possibilities for future distribution studies to aid our understanding of ecological problems.

Briefly, the study has allowed us to dispel the notion that, within the British Isles at least, there is an increase in the proportion of the parthenogenetic form as we move further north, but has confirmed the suspicion that there is an association of f. provisorius with calcareous soils (see Fussey and Sutton, 1981). This, and an analysis of the relationship between the composition of T. pusillus agg. and other climatic variables (e.g. altitude, rainfall) has allowed us to generate hypotheses which can now be tested by laboratory experiment (e.g. possibility that, say, temperature or humidity might act differentially on the two forms). Taken altogether, this integrated approach seems to have been particularly fruitful in elucidating the ecology of what is, after all, one of the most conspicuous elements of our invertebrate fauna.

Acknowledgements

It is a pleasure to note the assistance of Paul Harding and the many BISG recorders who have taken the time to send in samples. They include Arthur Chater, Adrian Rundle, Nick Newman, Roy Anderson, M H Dolling, Stephen Sutton, Gordon Blower, Derek Yalden, Ian Varndell, Bob Davis and Doug Richardson. Any further records will be gratefully received.

(References available on request)

THE ECOLOGY OF *LIGIA OCEANICA* AT ROBIN HOOD'S BAY

by R I Willows

Introduction

The rock slater Ligia oceanica (L.) is the largest species of British terrestrial isopod. Males can grow to a length of 33-35 mm (1¼") and a live weight in excess of 1 g. Females only achieve one half to two-thirds of this size. Ligia is generally found in the splash zone at the top of rocky shores. It spends the day hidden in crevices within solid rock or between boulders and large stones. During the winter months it can be found in and under vegetation at the very top of the shore. At a slightly higher level the marine bristle tail Petrobius maritimus occurs, as does Porcellio scaber, sometimes in large numbers.

Ligia is, of course, nocturnal, when it emerges to feed. It seems to be a generalist herbivore feeding on filamentous green algae, Enteromorpha and possibly also on allochthanous detritus such as brown seaweeds. In most cases a major component of the diet would appear to be silicaceous unicellular marine diatoms. However, the exact composition of the diet of any population probably depends on local conditions and availability. In the laboratory large cultures of animals have been maintained on dried Enteromorpha re-moistened with sea-water.

Sampling site and methods

For the past 18 months I have been studying the population dynamics and life-histories of two populations of Ligia. One population lives on a very sheltered harbour wall in Whitby, whilst the other inhabits an extremely exposed sea wall in Robin Hood's Bay. This latter has been the major study site. The population occupies the sea wall below the Bay Hotel in R.H.B. and is totally confined to an area of about 125 m^2. Unsuitable habitat on three sides and the presence of a stream running along the base of the sea wall prevent immigration and emigration, and so it is a site ideally suited to population work.

The population has been sampled by stratified random quadrats in an area of the wall 2 m high and 13.5 m long. This area was divided into nine blocks of twelve ½ x ½ m squares and on each sampling occasion 3 quadrats were selected at random from each block of 12 (making a total of 27 samples).

Sampling was performed at night, starting one hour after sunset, and usually took 2 to 3 hours. All animals in each square were collected, small individuals by pooter and adults by hand. Each sample was stored on filter paper moistened with sea-water at 10°C in the dark until weighed and sexed the following day. All animals were returned the following night to the quadrat of their capture. Thus sampling was non-destructive and mortality due to sampling is probably less than 2% of those caught.

During the winter months sampling was attempted each month, but unfavourable conditions such as cold, high winds and heavy rain sometimes made sampling impossible, not to say hazardous. Hence only occasional winter samples were successful. During the summer months samples were taken at approximately 2-week intervals. For size-frequency analysis 2 or 3 consecutive samples taken on alternate nights have been combined.

Results

Analysis of 15 size-frequency histograms between July 1979 and March 1981 has shown that these animals live for a maximum of about 2 years. Females with broods are found from early March until September, and the young released between June and September. Observations on the Whitby population have shown that the average brood size of Ligia is about 70 embryos (range 30-120), the number being dependent upon the size of female among other factors.

The females carry the developing embryos in the brood pouch for about 12 weeks before the young are released, and it is possible to estimate how long any female has been carrying a brood by the developmental stage of the neonates within the brood-pouch. With this information we are able to recognise two distinct phases of recruitment of young into the population. The first occurs in June when animals who produced broods in March and April release their offspring. These 'spring breeders' are followed by a second wave of recruitment in September due to animals which produced broods in June and July, which I term 'summer breeders'.

The animals carrying broods over the summer are smaller than those which bred earlier in the year, and it seems likely that these are the progeny of the spring breeders of the preceding year. They are therefore producing broods when they are about 12 months of age. In contrast, the animals producing and carrying broods in the spring are probably those that failed to breed in their first year and so breed early in their second, at an age of about 18 months. This conclusion is supported by the fact that the summer breeders are the larger animals of the previous year's cohort. Although it is not known whether age or size is the most important factor governing when an animal starts to reproduce (given that climatic conditions are favourable for reproduction), the larger animals breeding in the summer are probably those born in the spring of the previous year.

Therefore we conclude that a female born in the spring of one year will produce its offspring in the late summer of the following year (age at breeding about 12 months), whereas a female born in late summer of one year will not produce offspring until the spring two years later (aged about 18 months).

The number of animals who survive to produce a second brood is probably very small indeed. It does seem to happen occasionally that a spring breeder will survive to produce a second brood in the same summer, at an age of about 24 months, and these females can be recognised by their extreme size. The same probably happens with summer breeders who survive a second winter to breed in spring at an age of about 21 months, but these are difficult to distinguish from large animals of 18 months of age. In the laboratory females have been shown to be capable of producing a second brood, but in nature this is probably a very rare event.

RECENT WORK ON ISOPODS

MAINTENANCE OF A SEX RATIO OF 35 MALES: 65 FEMALES IN AN *ARMADILLIDIUM VULGARE* POPULATION

by H W Howard

A population of Armadillidium vulgare at Four Went Ways, Abington, Cambridge was sampled on 9 occasions in the period 1940-45. The mean percentage of females was 70, but this figure was probably too high because of samples taken on occasions when many females were pregnant (Howard, 1980, Crustaceana 39, 52-58). Omitting 3 collections made later than 20 May, the mean percentage of females was 65. A sample taken in April 1981 consisted of 31 males and 55 females, i.e. 64% females and agreeing with the 1940-45 estimate.

Broods were scored from 39 pregnant females collected in 1979 which were identifiable genetically as black type-B. Of these, 24 were amphogenics producing broods with an average of 54% females, 10 were strong thelygenics with broods containing an average of 99% females, 4 were weak thelygenics (70% of females in their broods) and one a weak arrhenogenic (20% only of females in her brood). Assuming all types of female produce the same number of offspring, such an assemblage of females would produce a sex ratio of 34 males: 66 females, thus giving a satisfactory explanation of the actual sex ratio observed in the population.

Eight estimates of sex ratios from amphogenics of 4 woodlouse species (A. vulgare, Armadillidium nasatum, Oniscus asellus and Trichoniscus pusillus), made by different workers and comprising no less than 10,641 animals, agree in showing a mean percentage of females of 52.9.

SUPRALITTORAL ISOPODS OF SOUTH WALES

by Graham Oliver & Alison Trew

For over two years we have been recording isopods along a 30-mile stretch of coastline from Cardiff to Port Talbot (see map).* Neither of us are experienced isopod ecologists, and we have endeavoured to use the recording scheme cards as the basis of our work. In addition, we do not have sufficient time to devote towards a highly detailed survey which would involve many weeks' fieldwork. We would like to outline our work, highlighting those positive aspects but also noting where problems have arisen.

The sites and their broad definitions are given on the map.* They can be roughly divided into groups - sandy shores, pebble banks, slumping cliffs, and turf-topped flatter areas. Fifteen species of woodlouse have been recorded from this zone - Ligia oceanica, Porcellio scaber, Armadillidium vulgare, Armadillidium album, Cylisticus convexus, Philoscia muscorum, Halophiloscia couchi, Platyarthrus hoffmannseggi, Oniscus asellus, Trichoniscus pusillus, Trichoniscus pygmaeus, Androniscus dentiger, Haplophthalmus mengei, Trichoniscoides saeroensis and Metatrichoniscoides celticus.**

Some of the distribution patterns are clear. A. album occurs only on Kenfig sands. Equally typical in occurrence is Halophiloscia couchi which is present on the exposed rocky shore at Nash Point. P. scaber and A. vulgare are frequent

** This new species is described fully in Journal of Natural History 15, 525.

* Map appears at end of newsletter.

under debris on most shores with O. asellus occurring in damp areas regardless of shore type. P. muscorum occurs wherever the vegetation cover is dense, especially at Sully Island where Rumex sp. and Atriplex sp. are abundant. C convexus is sporadic and we have no clues to the limiting factors of this species.

The trichoniscids pose many more problems. T. pusillus occurs rarely, but does so at stations 7 and 14 where conditions are apparently stable. The other five species are of most interest to us as they have previously been regarded as rare but are undoubtedly not so in the supralittoral zone. The table outlines the occurrence of the remaining five species of trichoniscid. Our interpretation of this table is completely speculative and any objective assessment would require a more quantitative analysis of distribution in terms of microhabitat, microclimate and physiological experimentation.

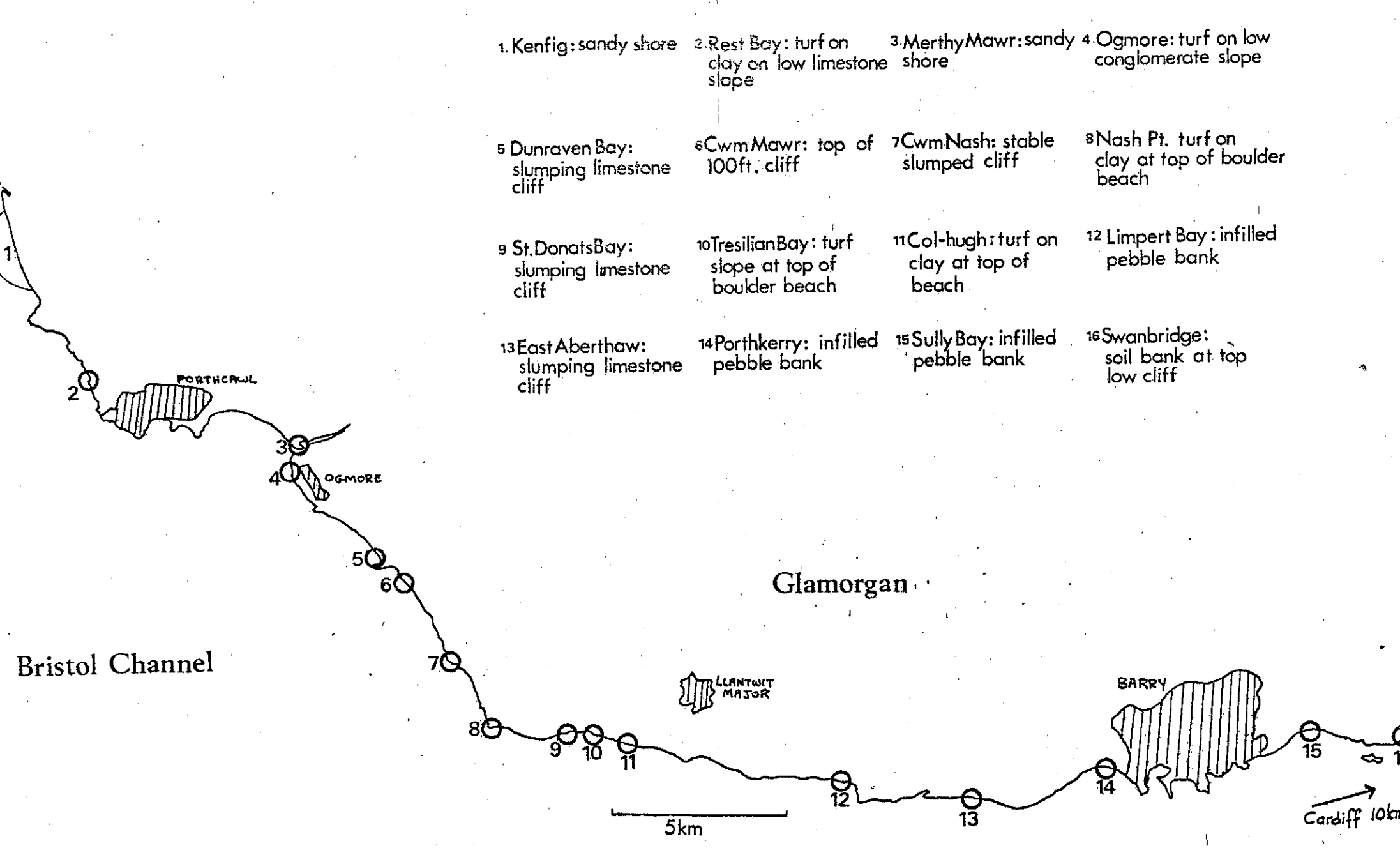
	Sandy shores		Pebble banks			Turf topped low rocky shores					Slumping cliffs			100 ft cliff top Stable slump	
Site numbers - see map	1	3	12	14	15	2	4	8	9	11	16	5	10	13	6	7
Androniscus dentiger			X	X			X					X	X			
Trichoniscus pygmaeus			X	X	X	X		X							X	
Haplophthalmus mengei			X	X	X	X	X	X	X		X	X	X	X		
Trichoniscoides saeroeensis						X	X	X				X		X	X	
Metatrichoniscoides celticus						X	X	X	X		X	X				

Our first conclusion is that sandy shores are too dry and unstable to support soil dwelling trichoniscids. The infilled pebble banks have an abundant fauna but T. saeroeensis and M. celticus have never been collected from them. The slumping cliffs and turf-topped banks show a sporadic occurrence of all species except perhaps H. mengei which occurs almost throughout all sites.

We are faced now with the questions of whether our methods reflect the true distribution of these species and, if so, why there is a sporadic occurrence.

We have so far relied upon active collecting, and have not resorted to sampling by cores or using extraction equipment. We must, therefore, have a climatic bias towards our results and probably we are more successful on wet days or after wet periods. We suspect, therefore, that our results do not reflect the complete picture.

Secondly, are our definitions of microhabitat anywhere near accurate? Again, we think not. We still need to carry out profile and transect work, soil analysis and microclimatic measurements to establish the changes that occur through the supralittoral zone.



Collec g Sites in the Supralittoral Zone on the Coast of South Wales

Many other relevant questions become apparent. Does H. mengei occur more frequently because it is more tolerant of lower humidity or is it more competitive in the soil ecosystem? Why do T. pygmaeus and T. saeroeensis occur together in the supralittoral, but the latter is almost exclusive to it? Are the maritime conditions (which we would have to define) essential for the survival of T. saeroeensis?

This series of questions could be very lengthy indeed. We would, therefore, like to finish by saying that the present scheme is an excellent starting point to the study of isopod ecology. We have found, however, that the results pose more questions than answers. The way forward lies in quantitative work, but we, like many other non-specialists in this field, will require considerable guidance and help if we are to answer any of these basic questions.

"NEGATIVE RECORDS"!

by Douglas T Richardson

When collecting continuously from a specific area over a long period (in this case 8 years), one comes to recognise that evidence accumulates which shows that particular species appear to be genuinely absent. No provision is made within the British Isopoda Study Group scheme for recording or recognition of such "Negative Records", and I am quite aware there are good reasons for not including this somewhat unscientific evidence in, for example, the species distribution maps. Nevertheless, I do think there are cases where "Negative Records" can be used to advantage, be it only to promote thought, discussion and exchange of ideas. Having accumulated evidence of this nature with reference to Platyarthrus hoffmannseggi Brandt and Armadillidium vulgare (Latreille) in N.W. Yorkshire (which, I should remind you, are considered to be approaching their northern limits in the county), I thought it might be a worthwhile exercise to plot these "negative records" on their respective existing Yorkshire distribution maps and see whether it was possible to extract any useful information or ideas from such composite plots.

Taking into account the geological, climatic and other characteristics of the area under study and applying these parameters to the remainder of the county, a number of interesting facts emerged:-

1. There is a negligible possibility of either species being found in the county west of the 4/4 easting line, despite the fact that a major part of this area is dominated by the Carboniferous limestone which, in theory, should provide the calcareous environment favoured by these 2 species.

2. That they genuinely prefer the well-drained, predominantly chalky, and in some cases sandy, soil and lower altitudes which are features of the area east of the 4/4 easting line. Within this area the extreme altitudes at which Platyarthrus and A. vulgare have been recorded are 50 m and 100 m respectively.

3. That there is a 10 to 20 km-wide band of magnesian limestone running north-south to the west of the 4/4 easting line, which seems to be devoid of these animals and which will obviously repay any detailed attention from recorders.

4. That there are still a large number of 10 km squares east of the 4/4 easting line for which there are no records as yet for either species which should in theory house both animals and to which future attention could be directed.

I would suggest, therefore, that an exercise based on this principle using results presented in a simple visual form, is capable of providing profitable material for discussion or reconsideration at the same time as utilising what are often regarded as unusable "Negative Records".

A WOODLOUSE BY ANY OTHER NAME .....

by Noel Jackson

Those of you old enough to have heard the songs of Rambling Sid Rumpo will remember his incredible selection of agricultural implements, such as jogling iron, screebling not and bogling fork. Of course, Rambling Sid's splendid catalogue of tools was the invention of Kenneth Williams and Marty Feldman, but it was based on fact. The old country craftsmen did have specialised vocabularies; something which preserved the arcane nature of the crafts and helped to prevent unqualified persons from jumping on the bandwagon. Is this what we are doing with isopods? Are we using a jargon which excludes outsiders (i.e. people without biological training) and thus precluding a wider interest in the order?

Compare the two lists below:

C R R	B T O
L D B P	R S P B
I M N F	B T C V
C D U	N C C

The one on the right should be a lot easier to remember, as the initials should have some relationship to things you already know. As most people have little Latin and no Greek, they find it hard to remember and use scientific names. So, to foster a wider interest in woodlice, I believe we must coin common names for them. These names must meet two criteria:

1. They must have a 'one to one' relationship with the scientific name. "Common slater" is not a very good vernacular name, as this applies equally well to Porcellio scaber and Oniscus asellus.

2. They must be recognised by all serious workers in the field (especially recorders), so that people recording "Sea slater" can contribute just as much as those recording Ligia oceanica.

Common names do promote a wider interest in a group of animals. The use of English names by Kevan and Ragge, along with the publication of a decent book, did a lot to stimulate people to study Orthoptera (Grasshoppers, etc.) in the early '60s. In Durham, where I am organising a tetrad survey of terrestrial slugs, most of our 90-odd slugwatchers prefer to use the vernacular names. Of course, the 4 most popular areas of natural history (birds, flowers, mammals and butterflies) all have common names. One wonders whether this is cause or effect.

I am not suggesting that scientific names should be dropped - people should be encouraged to use the "real" names as soon as possible - but jargon should not be made a barrier to developing interest. To help the transition from English to Latin, our common names should be translations of, or homophonic with, the scientific names. Better still, they should be both.

I would like to propose the following names for the commoner woodlice species. They may be of use to members faced with persistent children (or adults) who will not accept a scientific name as adequate.

Ligia oceanica	Sea slater
Oniscus asellus	Shiny woodlouse
Porcellio scaber	Scabby woodlouse
Philoscia muscorum	Meadow woodlouse
Trichoniscus pusillus	Chocolate woodlouse
Androniscus dentiger	Pink woodlouse
Metoponorthus pruinosus	Plum woodlouse
Armadillidium vulgare	Common pill woodlouse
Platyarthrus hoffmannseggi	Ant woodlouse

Discussion

The discussion provoked by this paper is worth an editorial résumé. The meeting appreciated the need to stimulate public interest and to attract enthusiasts of all ages, but many felt that the introduction of standardised common names might well confuse rather than elucidate, and that this would be so, to some extent, at least, because woodlice were not as visually distinctive as, say, Lepidoptera or birds. As far as the need for such names when dealing with children is concerned, certain parents in the audience noted the ability of their offspring to rattle off names like Diplodocus and Tyrannosaurus when applied to dinosaurs. After all, who can forget a name like Platyarthrus (spelling is a different matter)? Anyway, perhaps people with objections or support might like to use the newsletter as a forum for this burning issue.

And after all that -

We dined well at the Grosvenor Hotel and then went out on the town, recording Androniscus dentiger, Oniscus asellus, Philoscia muscorum and Porcellio scaber on walls. Robert Willows' research site was visited for Ligia, and Porcellio spinicornis was eventually run to earth on the wall of a public lavatory.

Early risers on Sunday went in search of Cylisticus convexus, Trichoniscoides albidus and other goodies elsewhere on the coast. Their dedication was amply rewarded. After breakfast we were treated to a sight of Buddelundiella cataractae and Halophiloscia zosterae, Pam Copson exhibited breeding stock of several species, Paul Harding showed slides of the habitats of some of the rarer species and Arthur Chater found T. albidus about 50 yards from the Hostel.

Quite a weekend, and the Americans launched the Space Shuttle!

PTH

And finally -

1981 IS THE LAST YEAR OF THE PRESENT SURVEY SCHEME. PLEASE SUBMIT YOUR RECORDS TO PTH AT MONKS WOOD AS SOON AS POSSIBLE, AND BY 15 JANUARY 1982 AT THE LATEST.

Any correspondence or enquiries should be sent to:

Paul T Harding
Institute of Terrestrial Ecology
Monks Wood Experimental Station
Abbots Ripton
Huntingdon
Cambs. PE17 2LS Tel. Abbots Ripton 381

STOP PRESS

BRITISH ISOPOD STUDY GROUP
Meeting - Cardiff, 2-3 April 1982

Accomodation has been booked in Senghenydd House which is a self-catering hall of residence of University College, Cardiff and is less than five minutes' walk from the National Museum of Wales.

Laboratory and lecture facilities will be available in the National Museum of Wales, and it is hoped to have a mini-bus available for some field trips.

PROVISIONAL PROGRAMME

Friday, 2 April 1982	Field trip in afternoon for those able to come. Meet in evening at a convenient hostelry and then go to Senghenydd House.
Saturday, 3 April 1982	Laboratory work and informal discussion in the National Museum of Wales. It is hoped to arrange a dinner for the evening.
Sunday, 4 April 1982	Fieldwork and discussion. Laboratory will be available. Depart.

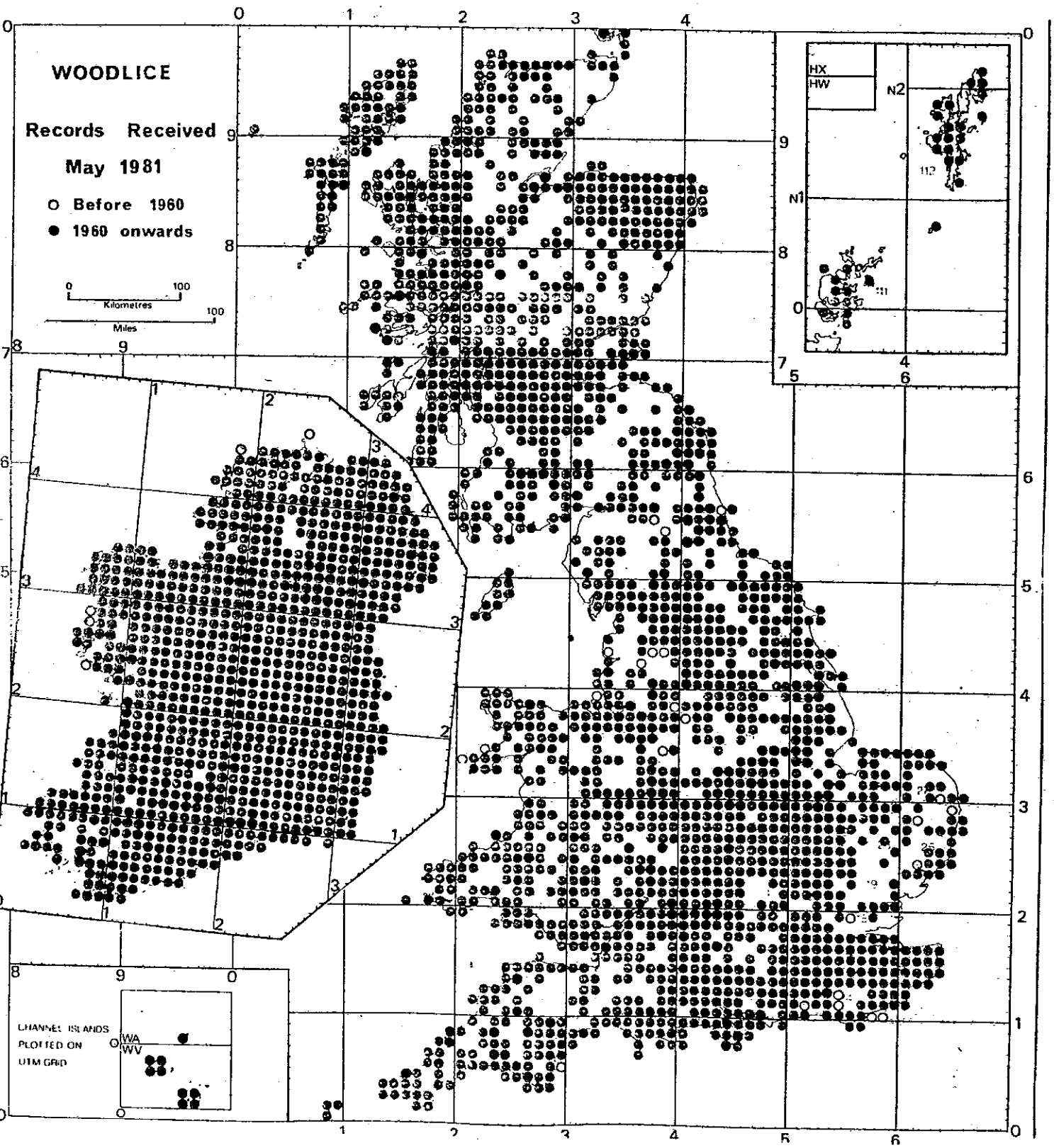
The exact cost is not yet known, as prices have not been fixed by the University for next year's accommodation. It should not be more than £6.50 per night for bed and breakfast.

Those people wishing to attend should send a deposit of £5.00 to:-

Miss Alison Trew
Department of Zoology
National Museum of Wales
Cardiff
CF1 3NP

before 1 October 1981. All cheques should be made payable to the Isopod Survey Scheme. Bookings will be acknowledged.

Further details will be sent after October to those who have booked.


WOODLICE
Records Received
May 1981
Before 1960
1960 onwards
0 100
Kilometres
100
Miles
HX
HW
N2
N1
CHANNEL ISLANDS
PLOTTED ON
UTM GRID
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