

THE SUSSEX RECORDER

**Proceedings from the
Biological Recorders' Seminar
held at
the Adastra Hall, Hassocks
February 1997.**

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Introduction: A Local Record Centre For Sussex

Tony Whitbread

For several years now we have been endeavouring to set up systems for the better recording and organisation of data. To date we have been very successful, especially bearing in mind the small budget. Specialist recorders are very active in their field, surveys have been done of major habitats and Sites of Nature Conservation Importance, and we are getting much better at networking information, both as a result of this seminar and through the Environmental Survey Directory (ESD). However, we have now reached something of a turning point, however we now need to go a little further.

The starting point for conservation work is the data. Organisation and use of data may vary from general data to highly specific records, from site based surveys to distribution maps, from strategic use to site specific use and from openly available data to that which is commercially obtained. In the organisation of data there are already several active systems; these could be organisational systems, both computer and paper based. We also have the ability to network between people e.g. through this seminar.

Perhaps the first reason why people collect data is because they enjoy it. But in addition to that there is one overriding objective and that is to collect and organise data for the benefit of nature conservation. Pressure on the environment is still great and as other interests, which may not have wildlife at heart, are able to organise their data and marshal their arguments there is an increasing need for us to do the same.

The time may now be right to bring together the existing systems into a co-ordinated record centre - a Local Record Centre (LRC) for Sussex, an idea which is now being taken forward by the Sussex Wildlife Trust in a consortium with both County Councils, English Nature, and the Booth Museum. The current thoughts are that the LRC will be located in one place as an organisational centre. It will make best use of the networking methods that have already evolved through this seminar and other initiatives. Significant amounts of data will be held at the centre but there will be linkages into other locations which have their own data sets. Arrangements may be made for some user groups to have direct access into the system and for other groups to be able to input their data by computer or on paper if they wish to. The broad aim is to have good access to information so it can be used to the benefit of nature conservation - whether that be through site protection or management techniques on special sites.

Best Practice For Biological Recording

Matthew Thomas

The speaker demonstrated a mnemonic to aid good recording practice in the field.

'SNODAL'

1 Species name

(include Latin name - genus and specific epithet)

2 Name of Recorder

3 Other observations

(e.g. apparent threats, population condition)

4 Date recorded

5 Abundance

6 Location

(6 figure O.S. grid reference and description of any relevant nearby features)

Molluscan Mapping: Its Development And Value To Conservation

Martin Willing (Conchological Society)

This brief paper outlines the origins and development of molluscan mapping in Britain, but pays particular emphasis to species of interest found in Sussex.

The origins of molluscan mapping go back to the foundation of the Conchological Society in 1876. At that time recording was based upon the botanical system which divides Britain into 152 'vice counties', and in only 9 years, in 1885, a national census was published. Since that time eight further censuses have been released, the last appearing in 1982. These publications included maps in 1926 and 1951. (see fig 1a - d).

Although the maps are on a very coarse scale, they have been of considerable importance for later work in that they imposed the discipline of the acceptance of new records being subject to specimen verification; they revealed approximate regional species trends and stimulated conchologists to undertake further collecting. Alongside the benefits were problems including the coarseness of the map scale, the arbitrary size of the mapping units and the exaggeration of abundance that is produced for widespread, but local species. These deficiencies were appreciated and the tinkering with selected maps produced some with 'dot' distributions or narrow strips (fig 1b & d) to deal with local or rare species. In 1960 the need for a finer resolution scheme was appreciated and a national 10km grid square was introduced. By 1976 enough data had been collected to produce a National Atlas (Kerney, 1976).

Although the Atlas maps were rather large scale they did provide much information that could be of value for conservation purposes. Thus they clearly revealed widespread and common species like the Rounded Snail (*Discus rotundatus*), and the regionality of the 'near endemic' species, the English Chrysalis Snail (*Leiostyla anglica*) (see fig. 1b & 2a). This latter species, which is comparatively common in a range of damp natural habitats in northern and western Britain, becomes rare and restricted to 'near' primary habitats in southern and eastern England, being found at only two central Wealden sites in Sussex.

Mapping also revealed or confirmed ecological preferences of certain species. For example the Round-mouthed snail (*Pomatias elegans*) was shown to be restricted to humid highly calcareous habitats; the Hollowed Glass Snail (*Zonitoides excavatus*) was limited to situations without lime and the Pointed Snail (*Cochlicella acuta*) to open grasslands usually close to the sea. There are many situations where mapping records collected at various times in the past reveal population trends and changes requiring further investigation. One such map shows the alarming decline of the freshwater Shining Ram's-horn Snail (*Segmentina nitida*) since the early years of this

century (see fig. 2b). National mapping can also give a 'early warning' of developing problems such as with the widespread limestone grassland species, the Heath Snail (*Helicella itala*) which was shown to be disappearing from many former strongholds.

The mapping reveals that Sussex has significant populations of a number of national rarities. The Cheese Snail (*Helicodonta obvoluta*) has a British distribution virtually restricted to the old scarp-slope 'hanger woodlands' of the West Sussex South Downs (see fig. 2a). Mapping has also shown that the county supports significant national populations of the rare water Mollusca, chiefly occurring on the very valuable grazing levels (or what is left of them!) at Pevensey, Lewes and Amberley (Killeen & Willing, 1996). These include the False Orb Pea Mussel (*Pisidium pseudosphaerium*), the Shining Ram's-horn Snail (*Segmentina nitida*), the Large-mouthed Valve Snail (*Valvata macrostoma*) and the Little Whirlpool Ram's-horn snail (*Anisus vorticulus*). The county is also shown to contain significant blocks of unimproved calcareous grassland on the South Downs (Willing, 1994). The very best of these contain a suite of Mollusca including the Heath Snail (*Helicella itala*), the Carthusian Snail (*Monacha carthusiana*) and the Moss Snail (*Pupilla muscorum*) that indicate the long term continuity of short grazed turf and a lack of agricultural 'improvement'.

A much finer scheme resolution than the national has been produced in a number of county Atlases which have plotted distributions on a tetrad basis (2X2 km square). One of the first to be produced was for the Isle of Wight (Preece, 1980). Mapping on this finer scale has many benefits giving a much closer match to intricate geological patterns, habitats, land uses and landscape features. There are examples of even finer scales such as that undertaken by Berry (1973) using a 50m grid within a single wood in Kent. Local mapping schemes are excellent ways in which to identify small and vulnerable habitats for conservation management. Kerney (1982) noted how the mapping work of Lloyd-Evans in south Yorkshire showed that if under 1% of freshwater habitats of a particular 10km square were destroyed the total freshwater fauna would be reduced by about 40%!

Mapping of non-marine Mollusca can however produce misleading and inaccurate details. Thus if the 1976 national distribution of the Pearl Mussel, *Margaritifera margaritifera* (a species restricted to soft water rivers in northern and western Britain) is compared to the latest distribution map, then an expansion in range is evident. However what the mapping does not reveal is that although the species is still present in many rivers, many populations have fallen to very low levels. Here mapping masks a major decline in population levels by concentrating upon range. Difficulty in finding or identifying species also initially led to mapping creating the impression that certain species such as Desmoulin's Whorl Snail (*Vertigo moulinsina*) and the Compressed River Mussel (*Pseudanodonta complanata*) were much rarer and therefore more threatened than is actually the case.

Mapping schemes are also sometimes justifiably criticised in that they merely record the presence or absence of a species within an arbitrary block of land, thus neglecting the chance to relate such records more specifically to other details. If undertaken in this manner then schemes fail to gather valuable information and are clearly of less

use for conservation purposes. Fortunately the molluscan mapping schemes described do not work in such a simplistic manner and record locations with a six-figure grid reference also noting habitat and locality details. It is thus often the case that a whole batch of separate cards might be completed for a single mapping square.

The value of national / tetrad non-marine molluscan mapping can be summarised thus:

- areas have been visited that would otherwise not have been
- it has encouraged people to extend species ranges
- baseline data has been established for population monitoring
- conservation 'hot spot' areas have been highlighted and studied in more detail
- a series of 'natural habitat indicator' species have been isolated and used to highlight the importance of habitats where they are found to be present
- data has been central in the formulation of a number of important documents including: The Invertebrate Site Register (Foster, 1983), the Non-insect invertebrate Red Data Book (Bratton, 1991), and the Government's Biodiversity species lists (Plowman, 1995)

The mapping of marine Mollusca is also important in establishing broad patterns of distribution to form the basis of later monitoring. In 1964 the Conchological Society devised a national marine scheme encompassing 40 sea areas, which was extended to 48 before the production of the first Sea Area Atlas in 1982 (Seaward, 1982). Just as terrestrial tetrad mapping gave greater resolution than the 10km scheme, so a number of Sea Areas were mapped to show more detail at a local and regional level. Thus Light (1990) recorded sea area 15 (Wight) in rectangles 2 minutes latitude by 2 minutes longitude, producing a provisional Atlas in 1990. More recently this has led to the launch of DOMMIC¹, a project to map the distribution of marine molluscs in the English Channel on a grid basis (see fig 3) each covering areas of about 90 km². A considerable stretch of Sussex coastline and adjoining coastal waters are thus involved in this scheme (*if interested contact details are given below).

Clearly molluscan mapping is not without its limitations, but it has played a major role in the ongoing conservation of our national mollusc fauna. As Kerney (writing in Killeen 1992) states, mapped information , " ..gives us the indispensable hard evidence, so rarely available, on which any worthwhile conservation strategy must be based".

¹ DOMMIC = (The project to map the distribution of marine molluscs in the English Channel) if wishing further details please contact: Mrs. J.M. Light, 88 Peperharow Road, Godalming, Surrey, GU7 2PN

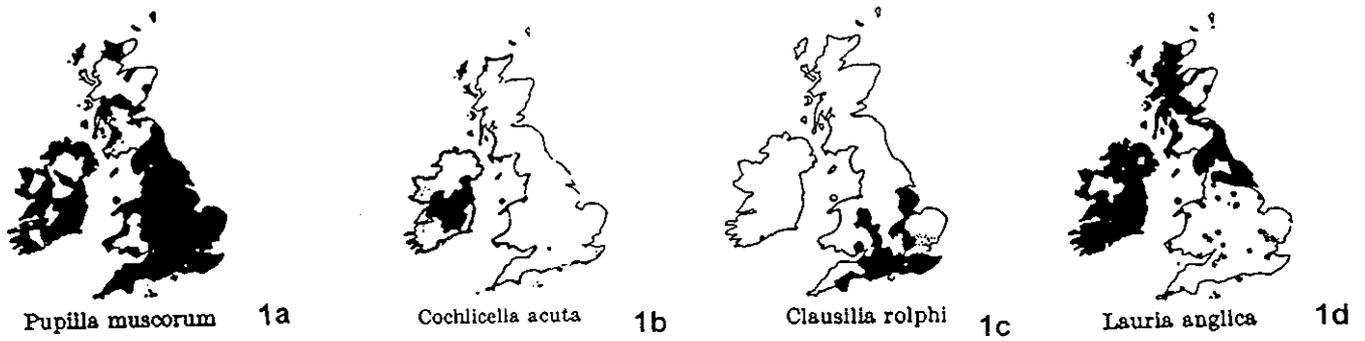


Fig. 1 Vice-county distribution maps (from Ellis, 1951)

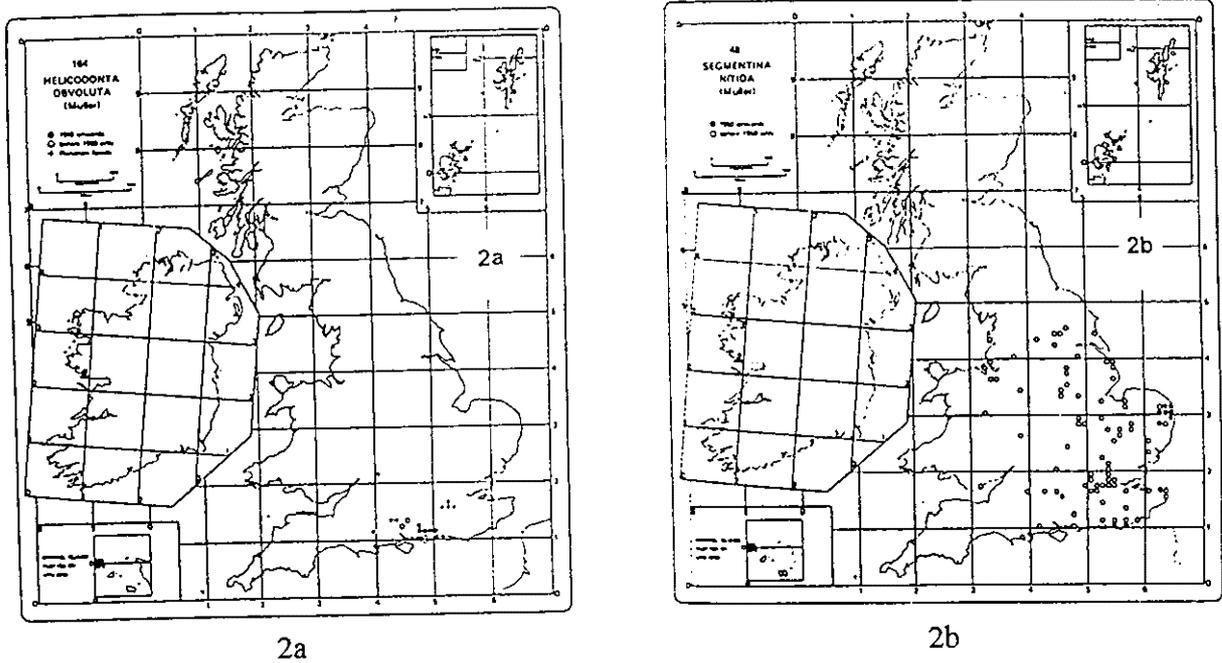


Fig. 2 10km square national distribution maps (from Kearney, 1976)

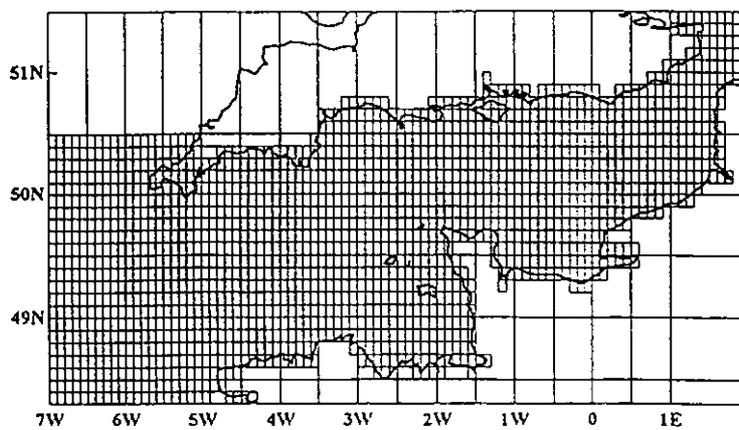


Fig. 3 The DOMMIC base map (the project to map the distribution of marine molluscs in the English Channel)

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Good recording techniques in the context of a LRC.

Simon Curson and Joanne Hodgkins (Sussex Wildlife Trust)

A good record must be unambiguous as to the species, clear and accurate as to the location (i.e. 6 figure National Grid Reference as well as name of site) and the date, and with the name of the recorder in case the record needs to be authenticated. Other useful information might include the English names of species, an indication of abundance, and notes on weather, were birds singing or nesting, anything unusual.

An example of a very improbable species list follows by way of illustration. Note that Black-Throated Blue warbler is so unusual that it is probably a mis-identification which the recorders would be asked to correct.

A HYPOTHETICAL SPECIES LIST

Site: Nobody's Wood Grid Ref: TQ 123 456
Date: 5 May 1971
Recorder: Mr & Mrs A M Moschatel

Name	Abundance
<i>Oriolus oriolus</i>	(Golden Oriole) 1
<i>Dendroica caerulescens</i>	(Black-throated Blue Warbler) 1
<i>Luscinia megarhynchos</i> (singing)	(Nightingale) 4
<i>Phylloscopus collybita</i>	(Chiffchaff) 7
<i>Accipiter nisus</i> (a pair)	(Sparrowhawk) 2
<i>Dentaria (Cardamine) bulbifera</i>	(Coralroot Bittercress) R
<i>Polygonatum multiflorum</i>	(Solomon's-seal) LF
<i>Lathraea squamaria</i>	(Toothwort) O
<i>Orchis mascula</i>	(Early Purple Orchid) F
<i>Ranunculus auricomus</i>	(Goldilocks Buttercup) F
<i>Galeobdolon luteum</i>	(Weasel-snout) F
<i>Convallaria majalis</i>	(Lily-of-the-valley) LD
<i>Digitalis purpurea</i>	(Floppy Dock) O
<i>Sorbus torminalis</i>	(Wild Service-tree) R
<i>Floccularia straminea</i>	(A fungus) 5
<i>Craterellus cornucopioides</i>	(Horn of Plenty) 10
<i>Hyocomium armoricum</i>	(A moss) R
<i>Racomitrium heterostichum</i>	(A moss) R
<i>Drypta dentata</i>	(A Beetle) 2
<i>Crabro cribrarius</i>	(A Digger Wasp) 3
<i>Myxus persicae</i>	(Peach Potato Aphid) 8
<i>Boloria euphrosyne</i>	(Pearl-bordered Fritillary) 1
<i>Callophrys rubi</i>	(Green Hairstreak) 6
<i>Leptidea sinapsis</i>	(Wood White) 3
<i>Anthocharis cardamines</i>	(Orange Tip) 16
<i>Gonepteryx rhamni</i>	(Brimstone butterfly) 1

Abundance

In terms of using data scientifically, numerical data is easier to interpret, but is probably best suited to mobile organisms such as birds and butterflies, or to discrete features of plants, e.g. orchid spikes or fungal fruiting bodies. It's much harder to turn some plant communities, such as a carpet of Bluebells and Wood Anemones, into a number. Here it's more sensible to stick to descriptive terms and allow for subjective interpretation, thus we have both numerical and descriptive codes in the list. Additional explanatory notes are also useful, such as indicating where counts are for pairs of organisms rather than individuals.

Monitoring

As well as the records that people may collect, incidentally, while out for a walk, some records are collected in a more structured manner. This leads to better all round knowledge of an area. From our example it is obvious that the list of species present in Nobody's Wood is far from complete. Only the scarcer species have been noted. For a complete picture as to the ecology of the wood we would need to know all of the species that were present on 5 May 1971 - even the common ones. The list gives us a snapshot in time, but species occurring earlier or later will be missed e.g. Violet Helleborine, Ringlet and who knows what birds will turn up during autumn migration!

More targeted approaches can be borne in mind, requiring more consideration.

- Any scarce species could be fully surveyed and regularly monitored to detect any changes in distribution or abundance. E.g. Did the Golden Oriole find a mate and stay to breed? Is the Lily-of-the-valley increasing in the wood? How many spots does the Coralroot occur in? Is Pearl-bordered Fritillary in every suitable ride? Visits could be once a month and the area could be divided into definite recording compartments.
- If scarce species are found in an area, then nearby areas of similar habitat can be visited to see if these species are present, e.g. is Coralroot present in neighbouring woodlands? Landowners permission should be sought. County recorders can direct you to likely or under-recorded areas.
- If the habitat seems especially good for certain groups or species, several visits throughout the year will reveal a more complete picture. Do Small Pearl-bordered Fritillaries, Purple Emperors, White Admirals occur in Nobody's Wood? A regular butterfly transect could be set up. Subsequent visits ought to be in sunny weather to increase chances of good comparative data.
- Species recording groups could look at fully surveying scarce habitats e.g. reedbeds or shingle and recording in areas that have been little visited e.g. North-East Sussex seems to be under-recorded for everything.

- It is always better if regular monitoring is done in a way that it fits in with county or national schemes e.g. BTO breeding bird census, butterfly transects.

One of the commonest ways of showing the data of county and national recording schemes is by tetrad or 10km mapping, ideally giving an overall picture of distribution (though apparent gaps in the distribution of a species may merely show under-recording). However, for site protection on a local level then smaller squares need to be used such as 100m.

Conclusions

Good records are needed for two main applications in conservation-

- In site, species, or, habitat protection, to justify the case with hard evidence which can be validated.
- To identify and interpret wider trends in wildlife and environment. For example, how would the conservation movement have identified the recent decline in many of our song birds, such as the Song Thrush, without decades of reliable information behind us? Now we can ask WHY they are declining, and surveys are under way to try and establish this for Thrushes.

Reliable information, i.e. your records, empowers the conservation movement who share a concern about our wildlife heritage.

Recording On Sussex Wildlife Trust Reserves: The Past

Louise Clark (Sussex Wildlife Trust)

For the first time in several years there is not a presentation of the SSCI project this seminar. Suffice to say that the project is nearly complete, and in fact will be completed at the end of March 1997. In the districts of Wealden and Rother, 331 sites have been considered for classification, and of these 97 SNCIs have been selected in Wealden district and 60 sites in Rother. This means that all of East and West Sussex have been covered, and that SNCIs have been identified in all the districts and boroughs of these two counties. This should be regarded as a remarkable achievement, having involved the co-operation of many individuals and organisations. A big thank you to all those concerned.

Several naturalists have mentioned that they have wildlife records which might be of value to the conservation world. However some of these people, do not have a suitable computer and are not likely to get 'up and running' in the near future, if ever. We, at the Sussex Wildlife Trust, and indeed many other organisations involved with nature conservation, are only just 'getting our act together'. Most of us are only just coming to grips with modern information technology and how it may help and service our needs. By way of example, we thought it appropriate to reveal the truth about what has been happening to/with wildlife records for Sussex Wildlife Trust reserves.

Wildlife recording on Trust reserves has always been very variable. Some voluntary wardens spend much time carrying out and co-ordinating monitoring of 'their' reserve, whilst other sites have been sadly neglected. Some species monitoring is commissioned by the Trust's Reserve Manager when there is a particular reason to have this information and there are also a small number of long term monitoring projects. Generally however, there is not a consistent approach.

Until very recently these wildlife records were simply placed about in a 'scientific' folder. The best we have been able to do (again until very recently) is to produce a species list, and even that can be quite a task.

Enter on stage, 'RECORDER'. This marvellous database had a chequered start at the Trust. Thanks to grant aid from English Nature, we acquired a machine and a primitive and user unfriendly version of the package. Tony, our Conservation Officer tried to get the system and machine working, and was at one stage seen carrying out open heart surgery on the computer whilst receiving advice down the phone from HQ. The machine and Recorder at last abandoned for fear of wasting more valuable time, and banished to a corner of the Conservation Office.

Some years later at a Conservation Department meeting, I heard myself volunteer to try and get the thing going. Several updates had been produced by then, a much bigger machine was needed, lobbied for and acquired, and the help of a friendly computer expert, Mike Thurner enlisted. A number of us became quite familiar with the package and even managed to unearth a fundamental flaw in the programme.

The Sussex Wildlife Trust had promised many years earlier, as part of a consortium which has aimed at an eventual Wildlife Records Centre for Sussex, to contribute by entering records for all our reserves. So, all that was needed now was lots of data entry. I placed an advert in the Wildlife Trust magazine and was delighted to be inundated with volunteers. These wonderful volunteers are trained with the necessary data entry procedures. Then they adopt a reserve and painstakingly plough through all the files, picking out suitable material to enter. Many thanks go out to the more than 30 who have helped.

We have also re-convened the 'Sussex RECORDER User Group' which brings together all those naturalists in Sussex (both amateur and professional) who are, or are thinking of using this database. It is important that we all collaborate at this early stage so that at a later one, all such records can be easily merged and accessed, say at a Sussex Wildlife Records Centre.

Now that we have data, we have begun to produce reports for some of the completed sites. As well as producing simple species lists, we are now able to reproduce records and reports in a number of more interesting and easy to digest forms (such as bar charts, graphs, tables, pie charts, distribution maps etc.). We hope in future to be able to report more accurately on the wildlife we are custodians of, and on the effectiveness of our management.

We are also discovering huge gaps in wildlife records, a situation to be addressed by our Reserves Officer, Neil Fletcher. If you have any wildlife records for our reserves or would like to record on them, please contact him so that your efforts can be focussed and are not duplicated.

Recording On Sussex Wildlife Trust Reserves: The Future

Neil Fletcher (Sussex Wildlife Trust)

As already mentioned the existing records for some of our reserves are inadequate. If the Trust is to manage its 38 reserves in the best possible way, then clearly we need much more information on the wildlife that currently exists, the management operations that we perform, and the effect or otherwise that these have on the wildlife.

We now have the necessary IT systems and software to handle this information. Louise has explained how Recorder can be used to store and manipulate information on species, and we now have a computer package to help us plan and record the management that we do – Countryside Management System. This supplies us with an easy-to-read document that illustrates exactly what has taken place, when, where, how much it cost and how long it took to do. Apart from improving our budgeting and reporting procedures, we can also tie this information in to any changes in biodiversity.

Any conclusions must be treated with caution however, as other factors such as climate or natural fluctuations can affect species populations. For this reason, a “basket” of **performance indicators** needs to be used to indicate the health of a habitat – a collection of species that are habitat specific and relatively easy to monitor over the long term, as well as NVC classifications for grasslands and mires. This falls in line with the monitoring prescriptions recommended by English Nature, but we need help to set-up and implement the projects.

In addition to this, our baseline data on existing wildlife must be improved. Whilst we have information for all our reserves on the higher plants recorded, much of it is outdated, and seldom do we have figures for abundance or precise location. For this reason we have begun, with the aid of volunteers, to produce vegetation maps for our reserves – outlining the key vegetation areas and also noting the location of any unusual or interesting species. However, biodiversity is the watchword, and we still require records of lower plants; insects; spiders; molluscs and mammals, if we are to get a complete picture of the requirements for conserving and managing these habitats.

The Trust wants to practise the best possible monitoring regime on its Nature Reserves, but the resources do not currently exist in-house. We need help!

Surveying in the Arun Valley, West Sussex.

Simon Allen - Arun Valley Countryside Project Officer.

The Arun Valley is an area of significant wildlife interest, with a number of wetland habitats including:

Lowland Wet Grassland Species rich meadows supporting breeding waders and providing feed for wintering wildfowl. Fields are dissected by a network of ditches supporting a variety of plant and invertebrate life.

Reedbeds support significant numbers of passerines and invertebrates.

Wet Woodlands are few but likely to support interesting flora and fauna.

Anecdotal evidence would suggest that the flood-plain dries out more in Summer than in the past with a consequent decline in the wildlife interest. Efficient drainage has allowed agricultural improvement: a shift from hay to silage production and increased stocking levels being the major changes. The Environment Agency has responsibility for the maintenance of the flood defences and the management of IDB ditches.

Survey data which exists for the valley is both limited and patchy. The need has been identified for comprehensive valley-wide surveys providing information on which management decisions can be made.

1996 Arun Valley Breeding Wader Survey The method employed was the Breeding Waders of Wet Meadows Survey (O'Brien and Smith 1992).

Lapwing	77 pairs
Snipe	37 pairs
Redshank	85 pairs

This reflected a decrease of approx. 40% in Lapwing and Redshank since 1982 and 25% in total waders since 1991. Increase in numbers at RSPB Pulborough Brooks mask greater changes for the remainder of the valley. Work involved RSPB volunteer surveyors.

1997 Arun Valley Ditch Plant Survey A comprehensive survey of every ditch in the valley using A Standard Method for the Survey of Ditch Vegetation (Alcock and Palmer 1985). The work to be carried out by Frances Abraham.

Arun Valley Ditch Invertebrate Survey A survey of a selection of ditches using standard methodologies. The work will be carried out by Martin Willing and Peter Hodge. Physical characteristics for the ditches will also be recorded and the results analysed using TWINSPAN (computer package for multi-variate analysis).

Arun Valley Woodland Survey Site surveys of woodland and hedgerows using SWT volunteers. Proposals to be made for further survey work. Hedgerow information to be of use in implementing proposed Hedgerow Regulations.

Arun Valley Reedbed Survey A repeat of 1987 RSPB Common Bird Census of Reedbed in Sussex. Some data on the reedbed itself to be collected.

Site surveys are also carried out prior to establishment of any management agreement with farmers. In each survey, information collected will be of use in Sussex Biodiversity Action Plan.

Details of each survey are sent to at SWT to be entered on Recorder.

The Arun Valley Countryside Project is a partnership between Arun District Council, The Environment Agency, West Sussex County Council, Sussex Downs Conservation Board and The Countryside Commission.

An Informal Introduction To The World Of Moths.

Simon Curson (Sussex Wildlife Trust)

I attempted to put over the diversity and beauty of moths in the short slide show that I gave. Most peoples' idea or image of moths is of a small, drab, boring, brown insect fluttering inside the lampshade desperately trying to find your clothes to eat.. Nothing could be farther from the truth.

The contrast that the public perceive between moths and butterflies is amazing. Because of this difference in opinion there is less research and survey of moths than of butterflies. However there is an increasing amount of resources put into the moth world, such as surveys for Striped Lychnis and re-introductions such as that of Reddish Buff.

The diversity of colour, size and shape in the moth world is astounding. There are green moths - the Emeralds, pink moths - Small Elephant Hawks, orange moths - Orange Footman, red moths - Cinnabar, yellow moths - Brimstone moth and the Elephant Hawk is olive and pink. The size ranges from a wing span of almost ten centimetres for the Privet Hawk down to a few millimetres for some of the micro moths.

Their camouflage is wonderful too: Lappet moths resemble dead leaves, the Pale Prominent resembles dead wood, Buff-tips look just like a broken piece of Birch twig, Large Ranunculus resembles stone, Peach Blossom is covered in pink blossom like spots and the Chinese Character very closely resembles a bird dropping.

Lastly the names that moths have been given are at best enchanting or at worst surprising. There are Old Lady moths, Suspecteds, Rannoch Sprawler, Setaceous Hebrew Character, Bricks, Tigers, Ghosts, Peacocks, Marsh Mallows, Chocolate Tips and the Uncertain!

In Sussex, survey work and record collation is being carried out by the Sussex Moth Group. They also run field events each year and try to raise the profile of moths in the public eye. If you have any interest in moths, any records old or new or would just like to show some support please contact Simon Curson at 79 Stanmer Park Road, Brighton, BN1 7JL.

The Pevensey Marshes

Neil Fletcher (Sussex Wildlife Trust)

The Pevensey Levels, or Pevensey Marshes as they are known locally, occupy an area of over 4,000 hectares in East Sussex, and as such is easily the biggest white bit on the Sussex map. The lack of urbanisation is not surprising in spite of early colonisation by the Romans at Pevensey village (then Anderita), for the whole of the levels consist of alluvial soils on top of what was salt marsh until the 12th century, and indeed used to flood regularly until the 1960's.

Through the result of human activity the marshes were enclosed from the sea and ditches dug throughout the marsh in order to drain the land and make it suitable for agriculture. This was an incredible feat considering the heavy clay soils and hundreds of kilometres of ditches involved. The result however is that these ditches now support a huge diversity of plants and animals such as the nationally rare Sharp-leaved Pondweed, Fen Raft Spider and Silver Diving Beetle, and the Levels have been described as the best site of its type in the UK for molluscs.

It should be remembered, though, that this is an 'artificial' habitat and has to be extensively managed in order to keep it in prime condition. The ditches are prone to seral succession, and without regular maintenance would very quickly reach a wetland climax community of reed swamp. Therefore, at the Trust's Pevensey Marshes nature reserve for instance, ditches are cleared out using mechanised diggers on a seven to ten year rota. This is done in a fashion to ensure that there is always a good mix of ditches in different stages of succession in any one area. Not surprisingly different species favour different stages - the Pondweeds and newts like an open, recently cleared aquatic habitat, whilst many of the snail species prefer ditches that have become choked with Bur-reed and Sweet Grass. The presence of both open water and emergent plant species at all stages is important for dragonflies, and the reserve boasts high populations of the scarce Hairy Dragonfly, an indicator of high water quality, with about 20 other dragonfly species over the levels as a whole.

It should be remembered however that the ditches only cover a tiny percentage of the land area of the levels, the rest being, in the main, pasture predominantly occupied by cattle during the summer months.

Sadly, some landowners have converted these fields to arable use, with the associated loss of grassland and horrors of nutrient input through the use of fertilisers. Inevitably, this nutrient finds its way into the nearby ditches and results in considerable loss of biodiversity. Furthermore, increased drainage 'improvement' has occurred over the past three decades in an effort to avoid flooding, which used to occur regularly in the wintertime. These floods attracted huge numbers of wintering waders and wildfowl, and part of the Levels' SSSI designation was based on the area being nationally important for its numbers of wintering Lapwing.

Through the offices of the RSPB, the Sussex Wildlife Trust and the Environment Agency, efforts are now being made to reverse this trend, with an area within the Trust's reserve serving as a pilot area where water levels are to be kept as high as possible. It is hoped to bring back the high winter numbers and also to restore the breeding birds such as Redshank, Lapwing and Snipe for which Pevensey used to be famous.

Progress is slow however, even though many farmers in the area would like to see higher water levels both in the ditches [which act as wet 'fences' and supply drinking water for cattle] and in the fields at spring time. Very low level flooding [splash-flooding] in spring keeps the frost off the grass and ensures a good spring growth, as well as providing ideal habitat for wetland waders searching for suitable breeding sites.

As a short-term measure, the Trust has built two scrapes on the reserve covering an area of about three hectares. Here the topsoil has been removed creating, in effect, very shallow lakes which should fill up with winter rainfall and gradually draw down over the summer months.

In spite of springtime drought conditions with a less than ideal water level, these scrapes proved very successful and were the only sites for breeding lapwing and redshank on an otherwise very dry reserve. They have also proved popular with waders on passage, and with hobbies during the summer that hawk over the surface chasing after dragonflies.

The long-term answer of course is to restore higher water levels over the whole of the marshes. There is a huge potential for compromise between the extensive high flooding that used to occur many years ago, and the 'belt and braces' approach to flood defence that was used to tackle it. Perhaps once again we may see the skies over Pevensey darken with massive flocks of wildfowl, and the hear the air filled with the sound of drumming snipe.

Pagham Harbour L.N.R. - Monitoring And Recording

Andy Foster (Contract Warden)

Pagham Harbour Local Nature Reserve is situated 5 miles south of Chichester. It was designated a Local Nature Reserve in 1964 and since then has been managed by West Sussex County Council. The intertidal area is owned by the Environment Agency and managed in conjunction with WSCC and other advisory bodies.

Pagham Harbour covers almost 1600 acres, it is designated a SSSI, SPA, and is listed as a RAMSAR site for Wetlands of International Importance. The reserve has two internationally important habitats, these being the 700 acres of saltmarsh/intertidal area and two shingle spits either side of the harbour mouth. Other habitats include ancient woodland, pasture land, reedbeds and agricultural farmland.

We are fortunate that we hold a substantial amount of old records for the reserve dating back to 1965; these earliest records were compiled and published by the Bognor Regis Natural Science Society who covered the wealth of flora and fauna that the harbour supports. Since the earlier days at the reserve the monitoring and recording have continued. From this, crucial management decisions may be made, which could influence the survival of a particular species.

The reserve has a comprehensive 5 year Management Plan. From this, the Annual Work Programme is extracted which outlines and prioritises the areas of work for the given year. It acts as a useful management tool for identifying new areas of work and providing a solid structure for the monitoring and recording.

With Pagham Harbour holding such a diverse range of habitats one is faced with the task of monitoring and recording an abundance of flora and fauna; one of the main survey areas is the collection of ornithological data. There are a number of ways in which we do this; we carry out high and low tide counts of the wildfowl and waders under the WEBS scheme, we have a volunteer who undertakes the ringing of individual species, and we collect day to day records of species including colour dyed or ringed wildfowl and waders in conjunction with the Solent Shorebird Study Group. We also monitor individual species, usually during the nesting season with the annual Tern Watch, and the recording of other nesting birds on the shingle and undertake any common bird census work that is relevant to the reserve. We rely heavily on the Friends of Pagham Harbour and volunteers to base themselves in the caravan on Church Norton shingle spit during the nesting season to inform the public and to protect the nesting area.

Butterflies are monitored by means of a weekly fixed transect route from April to August, to date 29 species have been recorded. The recording of moths is done

throughout the year using Mercury Vapour and Robinson Ultra-Violet traps with a total of 279 species recorded to date. Other Orders are monitored but in a more sporadic way and usually by volunteers or specialists.

The monitoring of flora is again very extensive and time consuming, the annual counts of the Schedule 8 Plant, the Childing Pink (*Petrorhagia nanteulii*), have to be undertaken annually with all of the colonies being mapped, also counts of Southern Marsh Orchid, Green-winged Orchid and Bee Orchids are carried out.

Fixed Point Photography is carried out from 15 different locations around the reserve in June and December. This is an extremely useful tool to measure erosion, increase or decrease of plant communities and times of severe drought or flooding.

Other areas that are continually monitored include the following:

- Water levels.
- Salinity levels.
- Meteorological data.
- Individual monitoring of particular species.

The Use Of Records For Management

As stated earlier, the use of records for management can be critical for the survival of a species. Some examples may be:

- Monitoring of the Childing Pink allows us to identify the main colonies and to observe if colonies are increasing and decreasing, therefore do we need to collect seeds or fence new colonies off to avoid damage by trampling?
- The monthly high and low tide counts of birds are useful e.g. identifying unusually high counts of a certain species; does this now make it of national or international importance?
- The annual counting of orchids can be used for the management of reedbeds, should we cut certain areas to provide more suitable conditions for the plants?

Monitoring of nesting birds allows us to place priorities on protecting nesting areas and studying the increase or a decrease of population from year to year, and what were the factors contributing to a good or bad season?