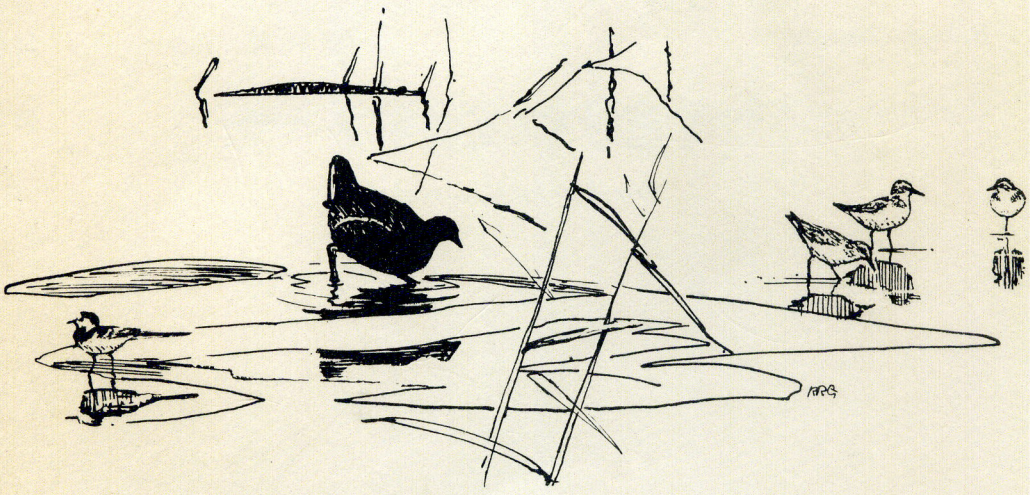
BIRDS IN SUSSEX

1962-1987



SUSSEX ORNITHOLOGICAL SOCIETY

Contents

Drawings by R. Greenhalf

Preface

The idea of marking the twenty-fifth birthday of the Sussex Ornithological Society by an article on the Society's formation and development in the Newsletter quickly expanded into a series of articles on the various topics, amongst others, listed on the next page. When the financial hurdle was surmounted by the generous support of Conoco and its associated companies the publication of this booklet became possible.

The authors and artist deserve the greatest praise for readily agreeing to write on the subjects of which they have a special interest and knowledge, particularly as in pretty well every case they already had other commitments. But that is the way it is; those who do most are asked to do more.

As to the articles themselves it will be seen that they have an historical slant related to the last twenty-five years, but otherwise the authors chose their own approach. They range from the anecdotal to systematic analysis of data from the Society's accumulated records and will provide both entertainment and solid information not otherwise readily available.

G. des Forges.

The cost of producing this booklet has been generously defrayed by Conoco and its partners Fina and Tricentrol.

THE S.O.S. — A PERSPECTIVE

B. A. E. Marr

Three and a half years living and working "overseas" in Northern Ireland has given me an interesting perspective on the whole English birding scene. Set against that, I have been able to judge the Sussex Ornithological Society and its activities, and here review the Society's history, aims, achievements, and even its personalities.

Today we belong to a Society of 1,450 like-minded souls. We live in a county with our own ornithological society; a county trust for nature conservation; an R.S.P.B. regional office and numerous members' groups; a number of local natural history societies; and many nature reserves. We have access to an infinite variety of books on birds, television documentaries and video recordings. Yet we have become so used to these that we take it all for granted; we expect these facilities and opportunities. I want you now to come with me a few years into the past, even before this Society was formed. There was just the Shoreham Ornithological Society; no local R.S.P.B. even. The bird book everybody used the *Observer's Book of British Birds*. No field guides. No local nature reserves. Few birders. That was the scene in 1952, the year in which I started birding, thirty-five years ago.

I did not make my first contribution to Sussex Ornithology until 1954, when at the age of 14 I submitted a number of records to the *Sussex Bird Report*. I was pleased to find that the published report for that year included no fewer than seven of my records, each with my initials. They included a Slavonian Grebe at Southwick; a Smew there and one at Pagham; 8 Bewick's Swans at Pagham; and a pair of Pied Flycatchers at Shoreham in the Spring. Nothing rare, but a satisfying start for a timid schoolboy. Initials were the thing; mine were (and still are) fairly distinctive, and combined with one's name and address printed at the beginning of the report, they provided instant fame and recognition which produced a warm glow of satisfaction. In fact, under some species there were so many initials that it was sometimes difficult to find the records. As all initials had full stops between them, they took up a lot of space — especially mine.

Alongside my initials for some of the records were the initials "JMT" — Joseph Twort, a near neighbour of mine at The Green, in Southwick, who had introduced me to the Sussex birding scene, and who was an enormous influence on my fieldwork and my thinking about the subject. He used to tell me about the legendary people whose initials occurred regularly in the report, referring to them by surname or initials only. There was Alder (LPA), an enigmatic figure rarely seen, but widely respected for his identification skills and always producing some of the rarest birds; Bayliss Smith (SBS), an eminent wader photographer; Brown (CFB), who regularly worked the coast between Hove and Shoreham; Eames (SJKE), whose initials led to the sobriquet "Alphabet Eames"; Grigg (CAG), who was an authority on the birds of the Steyning area; James (CMJ), another coastal man sometimes to be seen at Shoreham or Hove Lagoon; Le Brocq (PFLeB), who was a Kent man but who loved Chichester Harbour, and owner of the most enormous binoculars nicknamed "The Le Brocqulars"; Metcalfe (BM), who lived at Pagham Beach and who collected and collated all Pagham records; Port (MHP), a Brighton solicitor who was to be met in the field with Sutton (GAS), and who between them contributed much to the report, particularly GAS who used to walk along Hove Seafront before work every day for a period of years; there was Sandison (RJS), a quiet but amusing man who Twort (JMT) and I used to meet sometimes at Shoreham; there was Dr. Stafford (JS), revered President of the Shoreham Ornithological Society; Shepherd, Tubbs, Veysey and a few others. These were the field men in Sussex ornithology in the early 1950s. Many were loners, finding their own birds and keeping themselves to themselves.

To read of their finds in *The Sussex Bird Report* (there was no proper grapevine for instant news) was a thrill; to actually meet them in the field was an honour and an education. They were infallible — or so it seemed to me. Some of those names may be familiar to you now, as they are still active in the county. But the name which meant most at the time, and the real leader of Sussex birding, was Harber. Even his initials, DDH, had a certain ring about them, and it was to Harber at 1 Gorringe Road, Eastbourne, that you had to send your records. To a shy schoolboy, trying to find his way in ornithology, that was the biggest hurdle of all.

I would now like to quote some words from even earlier, from 40 years ago. "In compiling the following report, the assistance of Mr. J. A. Walpole-Bond in reading the draft and criticising it, and Mr. D. D. Harber's help in checking all the material, eliminating errors and in other ways, is gratefully acknowledged. The final responsibility is, however, mine." These modest words introduced the report on *Birds in Sussex* for 1947, which formed part of the *South-Eastern Bird Report,* "being an account of bird-life in Kent, Surrey, Sussex and Hampshire", edited by Ralph Whitlock, which had been published in this form since 1934. The author of those words was one Grahame des Forges, now, of course, the S.O.S. President, who had just taken over the editorship of the records for our county. So here you had, exactly 40 years ago, the three ornithological giants in the county — Walpole-Bond, des Forges and Harber.

"Jock" Walpole-Bond was the author of the mighty three-volume *A History of Sussex Birds,* published in 1938, with particular emphasis on the breeding birds of the county, and an unrivalled and never-to-be-repeated knowledge of his subject. Grahame des Forges was a young lawyer working for Brighton Corporation, who had spent a great deal of time in the field with Walpole-Bond, acquiring from that outstanding man information on the status of breeding birds in Sussex (but having no share in egg-collecting activities — Walpole-Bond was an ardent oologist). Denzil Harber was an up-and-coming Eastbourne ornithologist, who was then 38 and whose business life was organised so as to provide him with the maximum opportunity for bird study, in the field and on paper. He had really only just taken up the subject seriously and it was rumoured that Alder (LPA) had shown DDH his first Red-breasted Merganser. He was one of the first to be afflicted badly by the sea-watching obsession, and spent a great deal of time at Langney Point, building up a considerable knowledge of rarities and of visible migration over the English Channel.

The following year, 1948, saw the first *Sussex Bird Report* appear on its own, edited and published (at his own expense) by Grahame, presented, as he announced in his editorial "with somewhat mixed feelings". There were 63 contributors in that year, who included not only some of the observers earlier referred to, but such personages as Jeffrey Boswall, Bill Bourne, Richard Fitter, Phil Hollom, James Ferguson Lees, Geoffrey Paulson and John Reynolds. It was a mere ten years since *A History of Sussex Birds* and obviously the records published reflected that fact.

In 1949 Denzil Harber formally joined Grahame as co-editor, both names appearing on the cover of that report and the next six. In 1950, the report appeared with a new cover, the distinctive, highly attractive and appropriate drawing by D. A. J. Bunce of a Peregrine against a background of the Sussex chalk cliffs. In 1956 Denzil Harber took over as sole editor, and produced six reports single handed up to 1961. An apparent omission by Harber from the 1956 report was any acknowledgement of the work carried out by his erstwhile co-editor; he merely states his intention "to continue the Sussex Bird Report on the same general lines as in the past, when G. des Forges was my colleague". That statement, in his first report, is as revealing as that in his last report in 1961. In that he announced the formation of the Sussex Ornithological Society on February 17th, 1962, and that the Society would be taking over the *Sussex Bird Report* as from the 1962 issue. "I shall continue to be in charge of bird records for the county" he states, "and these should therefore be sent to me as hitherto". All reports with the Peregrine cover had appeared in a variety of bright and attractive colours; Harber's last one was black. The significance was not lost on the readership.

During the 1950s the "Sussex Report", as it was affectionately known by devotees, had earned a reputation as an attractive, professional and respected publication. It appeared promptly every Spring, and contributors eagerly awaited its arrival through their letterbox. It was as much to see what had been rejected as what had been accepted, as the editorial pen was used severely. Some observers believed that DDH set such a high standard that he accepted only his own records. There was certainly a liberal sprinkling of "DDH's" throughout the report. It is hard to believe now that every record was followed by the initials of the observer(s). But the report's reputation was high, as most contributors realised that it was better to exclude a few genuine records than to include a number of doubtful ones. As Grahame himself said of DDH in his 1949 editorial:—"his ability to put a finger on the weak points of sight records make him a most valuable partner."

In 1950, with the new cover, the editors had set out the objects of the report, and the reasons which governed the inclusion or rejection of records submitted, as they themselves had formulated over the previous two or three years. They referred to

Sussex bird-watchers as being "fortunate in having as their reference book so recent and complete a work" as *A History of Sussex Birds*, and that to attempt to re-cover that ground would be impossible and useless. They saw the objects as two-fold; first to record the unusual, and secondly (far more difficult, they suggested) "to record divergencies from the picture painted in the *History*, or, in cases where statistical information had been gathered, to confirm statements made therein". The editors conclude by affirming that the report was not a guide to Sussex birds in any sense whatsoever, and could not be fully appreciated without either a very wide knowledge of the subject or frequent reference to the *History*. At the time, these objects were both apt and laudable.

As an interesting aside, that same editorial in 1950 refers to "a great increase in the number of new observers, particularly young people", of recent years. The editors "cordially welcome their interest and help". But, they say, "a few tend to assume an air of infallibility quite out of keeping with their experience or capacity; plausible records are submitted which on investigation prove utterly incorrect; other records are palpable nonsense. To those few who would run before they can walk, we would suggest that even an old hand cannot name every bird at a glance, and that when they realise their limitations they are in sight of being reliable". How true that is today; but how would such a hard-hitting message be received?

By 1959 the *History* was more than 21 years out of date (it had reflected records and knowledge up to the end of 1937) but the Sussex Report had not changed in any way to take account of the passage of time. The issue for that year had 20 pages of "Classified Records", and to some readers, sorting through between all the initials revealed what was becoming an annual list of rarities, and rather insignificant and often unselective migration records. It was becoming more and more difficult to know the status of breeding birds in the county, as many important ones, such as Stone Curlew, Hobby, Woodlark, Dartford Warbler and Cirl Bunting, were inadequately covered by the report. Was it lack of observer coverage, or editorial disinterest, people asked? Or was it lack of space brought about by financial constraints? It was, after all, a privately funded report.

It was in 1959 that a significant event occurred which was to have an indelible effect on Sussex ornithology, both directly and indirectly. An intensive study of migration began at Selsey Bill by three observers; Mike Jennings, Tony Sheldon and Tony Marr, all very young (19 or 20) and full of energy and zeal. We were soon to be joined by Michael Shrubb, who farmed at nearby Sidlesham, who was older but even more reckless; and then by Richard Porter, Chris Mead, Ian Willis, Alan Kitson, Mike Helps and other youngsters. The regular weekend gatherings, for probably the first time in the county, brought together all the keenest field men not just to watch birds, but to talk about them and about county ornithology. A general unrest and dissatisfaction with the way the report was developing or rather, not developing, was emerging. There was a certain irony about this, now that I look back upon it. It was DDH who had suggested that we should watch Selsey Bill regularly, as he considered it had great potential. It had, and we saw many good birds there. Unfortunately no sooner did we start to do so, than he started to reject many of them. But that failed to worry us. We had more important matters to discuss than a few rare birds.

So it was actually at Selsey Bill that the Sussex Ornithological Society began. It began as our answer to a need which we had identified. That need was for a bringing together of active ornithologists and bird-watchers in the county to pool all their work and their knowledge on a regular basis, in a way which we felt that the Sussex Bird Report was no longer doing. There were two active and excellent local societies in West Sussex, the Shoreham Ornithological Society, already mentioned, and the Horsham Natural History Society; and one in East Sussex, at Hastings. There was no county-wide ornithological society, although the Sussex Trust for Nature Conservation (then the Sussex Naturalists Trust) was founded in 1961. The impetus for that, incidentally, came from a meeting held in Brighton in 1960; the Chairman of that meeting — Grahame des Forges.

The preliminary work in setting up the S.O.S. took place throughout 1961, and it is no coincidence that the founding members and the Society's first elected officers were some of the most active bird-watchers of the day. An early move was to invite DDH to be the Society's Recorder. It met with total opposition. We sensed that he felt threatened by the proposed Society and our commitment to the idea. To use his own phrase, he wanted still to be in charge of bird records. We must have seemed such a bunch of young upstarts at the time. It was only after a combination of my mother's cooking and Martin Port's tact and

diplomacy over lunch at 59 The Green one day in 1961 that he finally relented. So we were all set to go.

It was an exciting time. All Tony Sheldon's considerable administrative abilities (he was studying to be a Chartered Secretary) were pressed into service. After endless meetings in people's homes, gallons of coffee and a great deal of consultation and discussion, we booked a room in the Royal Pavilion, Brighton, for the evening of February 17th, 1962; sent out invitations to attend to 550 people; and held our breath. We did not realise how much our lives were about to change. The meeting was attended by 250 people and representatives of two local newspapers, Dr. John Stafford was in the chair, and under his persuasive and able direction, the Society was inaugurated, a Council established, and an annual subscription set (at one guinea).

The objects of the Society were expressed to be as follows:

(a) to bring together all persons having a common interest in the birds of Sussex providing a forum for the exchange of ideas and a centralised body for the dissemination of information.
(b) by means of lectures and outings to interesting localities to broaden the knowledge and scope of members.
(c) to co-operate with existing organisations such as the British Trust for Ornithology and the Royal Society for the Protection of Birds and other interested societies.
(d) to promote scientific studies throughout the county.
(e) to publish an Annual Report containing such items as the year's Bird Report, ringing results, results of any special enquiries, and other matters.

When we now, in 1987, look at those aims set 25 years ago, I think we can fairly say that we have met them, and that we have kept them in the forefront of our thinking and our activities since then.

My perspective so far has looked at the early part of the story; the background to the formation of the Society, the history of its creation, and its original aims. Let us now consider its achievements, for which we can turn to the published results in the Society's newsletters and annual reports. To do so, I have re-read every Newsletter — all 99 of them — and looked at the Sussex Bird Reports since the Society's first one in 1962 — and there are 24 of those. It is indisputable that we have produced an enormous amount of paper. And much of it has been valuable, timely and relevant. I can only touch upon the major aspects here.

Action was taken quickly on the Society's formation to tackle major conservation threats at either end of the county. At Pagham Harbour, water-skiing and a proposed extension of a caravan park on the east side of the Harbour threatened its wildlife, and at Rye Harbour there was a proposal to build a swimming pool at Nook Beach, where the Common Terns nested. Probably the most tangible and enduring achievements of the S.O.S. have been the creation of the Local Nature Reserves at Pagham Harbour in 1964 and at Rye Harbour in 1970. The Society's contribution was the collection and collation of the bird records for each harbour, and the preparation of a report linking these to the essential need to preserve the areas from further development or disturbance. Few people nowadays, enjoying the delightful surroundings and exceptional birdlife of either Pagham or Rye Harbour, are aware of how much effort by the S.O.S. and the S.N.T. was necessary to establish those reserves. Other reserves have followed, but none so critical or so urgent as those were 25 years ago. We have, however, lost good places. Glynde, Pevensey, Pulborough, the best of Amberley, have all virtually gone as prime bird habitats.

Equally prompt action was taken in 1962 to study the Sussex breeding birds. Michael Shrubb, later to become Recorder, then Vice-President, organised immediate surveys on six species: — Stone Curlew, Water Rail, Great Crested Grebe, Redshank, Stonechat and Wheatear. To these were subsequently added Kestrel in 1964, and Snipe and Yellow Wagtail in 1965. Since then a continuous programme has evolved, and we now know fairly precisely the distribution and numbers of most of our key breeding species. Woodland bird surveys; estuary counts (we were six years ahead of the B.T.O./R.S.P.B. Birds of Estuaries Enquiry); co-ordinated migration watches; ringing results; reports from the principal coastal migration stations; seawatch analyses; wildfowl analyses; roosting gulls; the effect of farming upon birds; inland Cormorants; area surveys; habitat surveys; wintering Hen Harriers; the Beachy Head Ringing Station; Pett Level Pools Project; have all been activities or subjects in which Society members have become involved. It is an impressive list. As a result the Sussex Bird Report has grown steadily in length, and it is now nearly

five times as long as it was before the formation of the Society (and that's with very few initials appearing!).

I should perhaps mention at this point two other publications on Sussex birds, one appearing soon after the creation of the S.O.S., and one several years later. The first is a *Guide to the Birds of Sussex* by the indefatigable des Forges and Harber, published in 1963 and taking the records up to 1961, just before the formation of the Society. The other is the comprehensive *Birds of Sussex* by Michael Shrubb, published in 1979, and taking the records from 1962 to 1976 inclusive (to early 1974 for waders and wildfowl), using much of the detailed information gathered by the Society. Michael Shrubb suggested that his book should complement Walpole-Bond's *History of Sussex Birds* and des Forges and Harber's *Guide to the Birds of Sussex*; he dealt primarily with populations, a subject of much greater concern to the present generation of ornithologists than to our predecessors, he argues. Walpole-Bond by contrast concentrated very largely on breeding biology, and des Forges and Harber on migration. As Michael says in his introduction, each of these works without doubt reflected the main ornithological concern of its generation.

The Society's membership stood at an easily-remembered 333 at the end of 1962, and slowly crept up to reach its present level. In the early days there was little competition, and we annually packed The Dome in Brighton for two film shows, afternoon and evening. The evening showing was the ornithological event of the year. Any ornithologist or bird-watcher who was anyone would be there. But the growing S.N.T., and in the late 1960s, the expansion of the R.S.P.B. into local Members' Groups, began to affect the attendance at meetings, film shows and on outings. When the R.S.P.B. opened its S.E. Regional Office in Portslade in 1974, we began to make changes to our programme, our policies, and our outlook to allow for the changes which were beginning to affect us. Our relationship with the R.S.P.B. has been an excellent one, and Richard Porter, first Regional Officer, and his successor, Tony Prater, who has just left the county, have been very supportive and helpful in so many ways — to find out how much, just read the Newsletters and Reports.

The final part of my "perspective" is to pay tribute to the personalities who have shaped and guided the S.O.S. through its first 25 years. I cannot possibly thank them all for making it so enjoyable or successful. We have had our triumphs and our disasters, our successes and our near misses. The mighty machine has come alarmingly close to a grinding halt on a few occasions when we could not replace key people quickly. But somehow we have survived. We have usually had the right people in the right place at the right time. Unless you have worked behind the scenes, you cannot imagine how much there is to do, or how much fun it is. I can remember the hilarious with the horrendous; the hard work; but above all the pleasure and the satisfaction. Much is the result of the team spirit engendered.

Our Presidents have served us well and John Stafford, who was so skilled and successful in starting us off, handed over to Guy Mountfort in 1966, a great coup for the Society when he moved from Surrey into Sussex. After 12 memorable years, Guy moved to Hampshire, and Grahame des Forges has been at the helm since 1978. From all that I have said of him, you will realise how appropriate a choice he was.

Secretary is the key job in the Society. I survived nine years before my move to Croydon precipitated a handover to David Chelmick, who kept us on a very even keel for a further five. Peter Martin stuck it for two years before the redoubtable Iris Simpson grabbed us all by the scruff of the neck and sorted us out. In her five years (we had instituted a five-year rotation rule by then to prevent stagnation) she inspired, directed, ordered, and organised us into a state of high efficiency — for example the success of our Annual Conferences owes much to Iris. There was no obvious or immediate successor, but Sheila Allwood nobly offered her services in 1983 and although Iris was a hard act to follow, Sheila has worked wonders behind the scenes.

The other half of Iris is of course Alf. Iris and Alf are like mustard and cress, or sage and onion, or love and marriage; you can't have one without the other. Alf's period as Conservation Officer was an eventful one, and I am sure that others who have worked in that job will not feel aggrieved if I single Alf out as one of the most energetic, sleeves-rolled-up, let's get started types we have had.

We have been lucky with our Treasurers. They always seem to be such kind, affable, good natured individuals; it must be the result of handling all that money. Eric Goddard, our first, was more than just a Treasurer; his wit and wisdom guided and helped us all over many years in very many aspects of the Society's work. I particularly valued his wise counsel when youthful impetuosity threatened (mine). He could be relied upon to brighten

up the dullest of days or the gloomiest of situations, with a quip and a chuckle. We were all immensely saddened by his death at the early age of 57 in July 1972, a few months after he retired from ten years of the Treasurership. His successor was Arthur Cooke, another gentleman, who looked after our finances with skill and care. Then came John Houghton, the iron hand in the velvet glove. His soft-spoken exterior masked a very able, tough and determined Treasurer, full of new ideas and initiatives, and a great asset on Council.

Vice-Presidency is the sort of job you make what you want it to be. I know, I have been one. The first, the longest-serving (for ten years) and perhaps the most self-effacing, was Michael Hollings, whose work for the Society was never adequately acknowledged. I have looked hard in the reports and newsletters, but I can find no satisfactory tributes to Mike for what he achieved. He was the brain behind many of the early surveys and counts, and as Chairman of Council was immensely effective in smoothing over troubled waters, both in Council and at A.G.M.s His home was always available for informal meetings, of which there were many in the early days of the S.O.S., with the discussions well-lubricated by his excellent home-made wine. I still cannot decide whether I prefer elderberry or elderflower.

Others who come to mind are dear old Tom Palmer, who was sharp as a needle with a wit to match; Cyril Helyer, who told me after he had had a heart attack that he would have to stop going out with actresses; Douggie Taylor, who looked after our membership list and who had me in stitches with his pronunciation of some of the names during our annual check through the list; and Geoff Gervis whose early retirement allowed him to do such a lot as Assistant Recorder to Mike Shrubb. Sadly all four are dead.

Still with us thankfully are many others who have helped. Roy Sandison ('Sandy' to us all) was on the first Council and its Chairman for a while. He looks no different today than he did 25 years ago. Stuart Hughes has done an immense amount for us and is definitely an unsung hero. Barrie Watson has always provided a useful link with the BTO. David Lang was our first Conservation Officer, and we always regretted that ill-health forced him to give up the job. And then the 'younger generation' led by John Newnham, John Trowell, Martin Banks, et al — now not so young, perhaps.

I have, of course, left the best until last. These are that venerable group of gentlemen without whom it would all be in vain — the Recorders. My dictionary defines 'venerable' as 'worthy of reverence', which they all undoubtedly are, or 'aged-looking', which some of them became. It's the pressure, you know; and the idiotic descriptions sent in; and the silly queries. How can anyone remain sane for up to seven years in a job like that? In fact, the number of years each has spent as Hon. Recorder can be directly related to their state of mind, or vice versa.

The shortest period was John Cooper's (one year); he has been totally unaffected. Next shortest is Tony Prater with three years (although he had been Assistant Recorder for one year before that) and he became so deranged that he has moved to the ornithological desert of Norfolk before his five years is up. Charles James survived for four years, but then he had been birding in the county for much longer than most of us so had seen it all (and he had Beryl to console him when it all got too much). We now come to Mike Rogers at five years and Mike Shrubb at 7 years. The two Mikes undoubtedly made enormous contributions to the county's ornithology, and both left their imprint on the bird report, each having the ability to summarise a wealth of data into a readable yet concise format, which has set the pattern for all to follow. Did their lengthy tenures affect them? Not really. As MJR was a policeman and MS a farmer, we had to expect eccentric behaviour which was either arresting or earthy — and we got it. I shall never forget MJR's impression of PC Plod, pacing up and down the stage at Clair Hall to illustrate his normal birding speed in woodland. Among many recollections of MS I cherish is the occasion when he wrote in the margin against a dubious record being circulated around the Records Committee the words "Round objects"; the next Committee member had written against it — "Who is Round and to what does he object?" Clearly MS had studied at the DDH school of charm and etiquette.

Of course the Recorder in the hot seat the longest was DDH — Denzil Dean Harber. He served for 10 years in all, if you add his 4 years with the Society to his 6 on his own editing the Sussex Bird Report before that. He was a great character in his own right, with a wicked sense of humour. Some of my recollections of him appeared in a Newsletter article in 1983, and from which I will now quote (with the Society's permission, please). I have already described my first experience of submitting records to him in 1954, when I learnt to be addressed simply as 'Dear Marr' in letters and postcards. It was to be surname only in the field, as well, I learnt later.

1955 was a good year — 22 sets of initials — but with my first taste of controversy: — Harber challenged a record of 428 Skylarks arriving from the sea on October 22nd, by suggesting that 'surely they were Starlings?', and then published the record under Skylark as 'some coming in . . . '. I was to quickly learn that DDH could be very dismissive and cutting, but always with the aim of setting the highest possible standard in the acceptance of records; but a 15-year-old schoolboy, trying to establish a reputation for himself, found such scathing suggestions very upsetting. In 1956 I met DDH for the first time, at Dungeness, where Bert Axell was teaching him to ring birds. Here his unique sense of humour was apparent — a lot of ribbing towards his tutor and poking fun at any slightly dubious identification, all in good spirit and with a mischievous twinkle in his eye. But you had to know the great man first to realise that his bark was worse than his bite. Bite he did when challenged over the identification of a grey shrike at nearby Lydd, which he said was a Lesser Grey (it was August, after all) but which others claimed as a Great Grey. 'Rubbish' shouted Harber — a favourite word of his — and barked at all who dared to argue against him.

Harber's frequent rejection, or at least omission, of records was a source of friction with many observers. But he did have an unerring ability to spot a shaky record or description — a phrase would sound familiar and he would find it copied from a field-guide, or time or place were suspicious or unlikely. Some rejections were mischievous. To an observer who claimed some Twite at Seaford Head, he wrote to say that Twite had never been recorded in Sussex in September, although he himself had seen some! A letter to a Society member who thought he had seen a Snow Finch at Newhaven, told him that 'It was a Snow Bunting you bloody fool'. Some observers from Portsmouth wrote to DDH to say that they had seen an early Autumn Long-tailed Duck off Langney Point (Harber's own regular sea-watching patch), and they sent further particulars when he alleged that it was only 'an aberrant female Common Scoter'; to which he replied that he considered the correspondence terminated.

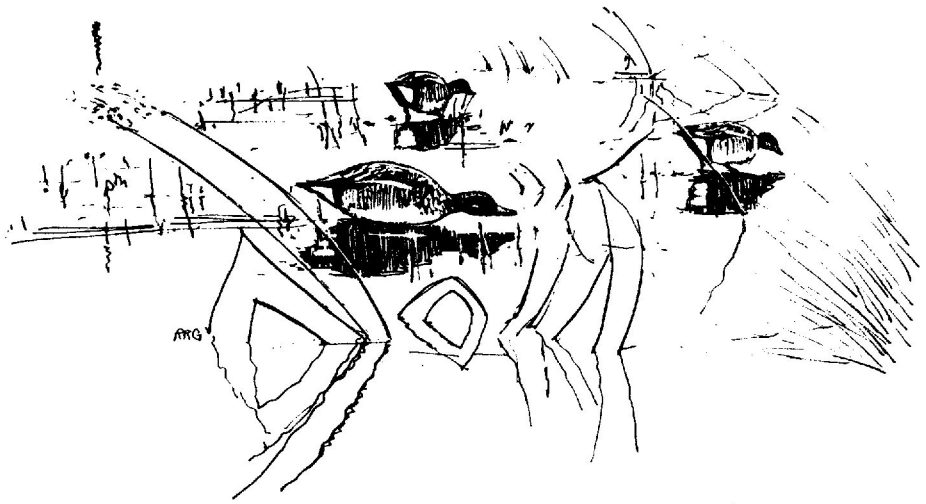
In the 1956 *Sussex Bird Report* is a statement relating to a White Gull which had been seen at Shoreham for two years, and although first identified as a second year Glaucous Gull, had not changed colour, and 'must now be regarded as doubtfully of this species', suggested DDH. He added that James Fisher had seen the bird and considered it to be an 'albino (or rather 'dilute') Herring Gull', but that 'it does not appear that any other observer shares this opinion'.

Harber loved the cut and thrust of argument and controversy, and brought to bear his considerable vocabulary and powers of logic to tilt at what he saw as the opposition. I encountered a lot of this in the early days of the Society, for as our Honorary Recorder DDH was a mercurial character whose abilities and energies did not always go in the direction Council wished. I was Honorary Secretary, in my early twenties, and really no match for his skill and force as a debater. Looking through letters written more than 20 years ago, I can now see more clearly the logic of what he had to say, although I still do not agree with the spirit of much of it. But what lively Council meetings they were, as some of us will remember! And how often his criticisms and comments were relevant and accurate!

I am sure that DDH regarded bird-watching and bird-watchers as a very entertaining subject, and he certainly livened it up. His presence at a 'twitch', as it would now be called, was always welcome, and his outrageous and outspoken comments about other observers just out of earshot were hilarious. 'Worst bloody field observer in Britain' he said of one eminent ornithologist, author of several books, President of this, Vice-President of that: 'show him a Dunlin and he'll think it's the Stilt Sandpiper'. And to an officer of the S.O.S. who admitted that he could not tell why a Dowitcher at Sidlesham Ferry was a Long-billed or a Short-billed, Harber suggested to him that he would find it easier if he spent less time talking and more time looking at the bird!

He had organised his life around bird-watching, and lived for rarities and, in his last few years, for holidays abroad, often with his wife Mary, on their scooter. On one trip to Spain she got off at a petrol stop, and he had gone on many miles down the road before he discovered that she wasn't on the back. We can imagine what he said when he found her! He once lost a whole year's Selsey Bill log-books when they fell off the back of his scooter — his remorse was quite touching. To those who could stand up to him, and who could understand him, Harber was a man to be much admired. Others saw him in a different light. Either way he was a character, a personality of the type rarely met with now. When he died suddenly in 1966 after an operation for cancer, ornithology lost someone who was larger than life.

So there we are; some of the characters of the last 25 years, and before, in a county singularly blessed with an eventful and colourful ornithology. The S.O.S. has successfully spanned its first quarter century, and I believe emerges from it with some distinction. But it is really all a product of the people running the Society; get the right people, and you'll get the right results. Perhaps that should be our message to carry into the next 25 years and beyond.



CHANGES IN THE STATUS OF SOME BREEDING BIRDS IN SUSSEX OVER THE PAST 25 YEARS

P. James

Since its formation, the Sussex Ornithological Society's survey programme has provided numerical evidence to demonstrate the changing fortunes of many of our breeding birds. It is apparent that over the past 25 years striking changes have occurred in the size and distribution of the breeding populations of some species in Sussex. During the period under review, a number of species have attempted to nest in the county for the first time but this has been offset, inevitably, by the loss of others due to such factors as habitat destruction and climatic change.

This paper attempts to review some of the more significant changes which have occurred in our breeding bird populations. Emphasis is given to recent colonists and to those species which have become extinct as breeding birds in the county.

Species which have colonised during the period 1961-1986

Over the past 25 years, at least 16 species have attempted to nest in Sussex for the first time. Of those which have established breeding populations, by far the most spectacular rates of increase following colonisation have been shown by the seabirds. Since 1975, three species (Fulmar, Kittiwake and Sandwich Tern) have colonised the county and of these the first two are probably still expanding.

The Fulmar is a now familiar bird of the cliffs between Brighton and Fairlight. Although first recorded from these areas in 1950 (Shrubb 1979), breeding was not proved until 1976 when young birds were seen at Newhaven. The range expansion and growth shown by this species in Britain is well documented (e.g. Fisher 1966). In Sussex, 106 occupied sites were located by the Society's seabird survey of 1983-84, an increase of almost 10% per annum since 1969 (Prater 1985).

A similar dramatic increase has been shown by the Kittiwake. This attractive maritime gull bred for the first time in the county in 1976, when 4-5 nests were located on the Newhaven-Peacehaven cliffs (James 1981). This colony has subsequently expanded both in numbers and in the length of cliff-face occupied, with some 689 nests counted in 1985. In 1981 there were also 40 pairs at Beachy Head. This colony has now disappeared; Prater (1985) suggested that they had been drawn into the large Newhaven concentration.

The Sandwich Tern bred for the first time in the county in Chichester Harbour in 1975. The colony increased rapidly in size, reaching a peak of 105 pairs in 1977. The subsequent decrease which has taken place has been attributed to regular flooding by high tides (Prater 1985). At Rye Harbour two nests were found in 1984 but there was no evidence of breeding in 1985. In 1986 at least 40 pairs were known to have nested and breeding success was stated to be very good. Despite this encouraging development, the species remains very local in southern England. It is well known for its rapid fluctuations in numbers and its tendency to abandon colonies suddenly. Its future in the county is therefore uncertain.

Although strictly not a new colonist, the Cormorant has recently bred in the county for the first time since 1938 or earlier. In 1985 a pair raised 2 young on the cliffs at Fairlight and in the following year 4 pairs were present. At least 3 young fledged successfully.

During the past century, a number of species have colonised Britain from the Continent. The Collared Dove is without rival if judged in terms of numbers, but it is far from unique. The Black Redstart and Little Ringed Plover both preceded it and other recent colonists include Cetti's Warbler, Firecrest and Serin. In Sussex, the Black Redstart was first proved breeding in 1923 and colonisation by the Little Ringed Plover occurred in 1949. The Collared Dove first bred in 1958 and it is now a very familiar sight in towns and villages throughout the county.

Although Witherby (1938) described the Firecrest as a 'fairly frequent visitor from October to April along the coast from Cornwall to Kent', breeding did not occur in this country until 1962 (Adams 1966). This event fitted clearly into the European pattern with North Germany colonised since 1900, first breeding in the Netherlands in 1928 and first

breeding in Denmark in 1961 (Sharrock 1976). In Sussex, a pair was found nesting in Ashdown Forest in 1973. This was the first breeding record for the county. Pairs were located in two further areas in 1976 and a detailed survey of the woodlands of West Sussex in 1982 revealed the presence of 3 colonies totalling at least 10 singing males (Bealey & Sutherland 1983). Although the number of pairs breeding at any one site varies widely from year to year (Rare Breeding Birds Panel 1983), it is likely that the few breeding records published in the Sussex Bird Reports do not accurately reflect the true status of the Firecrest in the county. Careful searches of stands of mature conifers in the Weald may well reveal the presence of more pairs of this attractive species.

Although now well established in parts of East Anglia and in most south coast counties from Kent to Cornwall, the Cetti's Warbler remains surprisingly scarce in Sussex. Having extended its range from the Mediterranean coast through France during the present century, it finally reached Britain in 1961 with further records in 1962, 1967 and 1968, before they finally became established in 1971. The first confirmed breeding was in 1972. In 1973 at least 2 birds were present at one locality in East Sussex from May 5th to the end of July and it is possible that nesting occurred. In 1975 one pair definitely bred in West Sussex but there have been no subsequent nesting records for the county. Given that Cetti's Warblers are recorded annually from a number of localities in Winter, the absence of recent breeding records is surprising. This has yet to be explained satisfactorily but it may be linked to the absence of extensive reedbeds fringed with scrub in our area.

The Bearded Tit is another species normally associated with *Phragmites* dominated reedbeds. The original breeding stock in Sussex died out in the middle of the 19th century (Walpole-Bond 1938). Following a series of small irruptions in the 1960s, a small population, totalling less than 10 pairs, became established in two areas of the county. Breeding was first proved in 1972. Although breeding has ceased at one site, the other locality holds nesting birds in most years. In 1984, for example, 3 pairs were present in the breeding season. One pair definitely bred and 4 juveniles were seen.

Although colonisation of Britain by the Serin has long been predicted, its performance so far has failed to live up to expectations. Now established in parts of south Devon, the only breeding record for Sussex remains that of a pair in Ashdown Forest in 1969. This species is seen annually in the county as a vagrant and given that there is plenty of suitable nesting habitat along the coastal belt, it is conceivable that further breeding could occur.

The Honey Buzzard has long been associated with the New Forest as a breeding species. It is perhaps not surprising, therefore, that a single pair raised 2 young in the interior of the county in 1976. Birds were reported from a second area on a number of occasions between 1976-82. Sussex remains one of the most heavily wooded areas in England and it is possible, therefore, that this shy and retiring species could breed elsewhere in the county.

In addition to those species which have colonised Sussex naturally, there are those which have established breeding populations following accidental and non-accidental introductions. A well documented example is the Mandarin which was first imported into Britain as early as 1747 (Savage 1952). Although the species first bred in captivity in 1834, it was not until the 20th century that a feral population became established, and not until 1971 that it gained official admission to the British and Irish list (Sharrock 1976). Breeding was proved in Sussex in 1971 and since then a truly feral population has become established in the north of the county (Hughes & Codd 1980). There is also evidence of a population in central East Sussex and birds have been reported from other scattered waters in our area. Hughes & Codd (1982) estimated that there were probably in excess of 150 birds in the county and possibly as many as 175.

The establishment of a Wildfowl Trust reserve at Arundel has resulted in breeding attempts by other feral species. In 1976, three pairs of Gadwall reared 24 free-flying young at this locality. Since then birds have been seen at a number of sites in the breeding season although the only reports of successful nesting have been from nearby Arundel Park. It seems likely, therefore, that this species will never become established as a numerous breeder in the county.

In 1979 a pair of Wood Ducks was seen at this locality and successful breeding was reported the following year. Isolated records from other parts of the county include up to 12 at Blackboys in 1985. Attempts to naturalise this North American species in Britain were made as long ago as the 1870s but it is not clear, however, whether a self maintaining feral population has yet established itself in this country (Sharrock 1976). The extent to which

the small breeding population in Arundel Park is self-supporting is not known although the future of this species in Sussex will be followed with considerable interest.

The Ruddy Duck, another North American species, was first admitted to the British and Irish list in 1971 (Sharrock 1976). In contrast to most introductions, this one was entirely accidental. The Wildfowl Trust imported 3 pairs in 1948, and they began breeding in the Slimbridge collection the following year. Some of the young raised escaped pinioning and it is thought that these birds were those which commenced breeding in Avon in 1960 and in Staffordshire in 1961 (Sharrock 1976). Since then a major expansion has occurred in both areas. In Sussex, early records of Ruddy Ducks were treated as local escapes. In the late 1970s this species was recorded with increasing frequency in the county and this was most likely due to winter dispersal from the large feral population in the Midlands. In 1979, a male and a female, perhaps unpaired, remained at Chichester G.P. throughout the year and a single pair raised 3 young at Pett Level. This was the first breeding record for the county. Young were raised at the former locality in 1981-82 and it is likely that the small population present here throughout the year is supplemented by birds hatched at Arundel W.F.T.

The Greylag Goose has occurred more regularly in Sussex in recent years than formerly and it is likely that introduced populations now feral in southern England account for the bulk of the records. Breeding was first recorded in our area in 1977 when a pair raised 5 young in Arundel Park. Further successful nesting was reported in 1979 from Petworth Park and Waltham Brooks. During the 1980s the species has continued to spread in much the same way as the Canada Goose. In 1985 flocks of feral birds were recorded from 4 principal localities. Successful breeding occurred at Scotney Court G.P. and there were breeding season reports from at least 5 other areas.

Another species that owes its presence in Sussex, either to escapes or to deliberate releases from captivity, is the Ring-necked Parakeet. Now officially admitted to the British and Irish list, it remains a scarce bird in the county. Breeding was first recorded in 1978 when 3 pairs were found at Hollingbury Woods although nesting may have occurred the previous year. Despite occasional records from many parts of the county this remains the only known breeding site. One pair nested successfully in 1984 and up to 8 birds were present throughout 1985.

The Golden Pheasant, a native of central China, is now well established in at least 2 wooded areas in the extreme west of the county although little is known of the origin of these birds. In 1984 there were 4 occupied territories in West Dean Woods and 13 territories at Kingley Vale. These figures show an increase from the 2 and 11 territories respectively recorded in 1983.

Species which have become extinct during the period 1961-1986

Over the past 25 years, at least 9 species have become extinct as breeding birds in Sussex. It should be emphasised, however, that the status of some of these species in the county has always been erratic and subject to fluctuation. It is conceivable, therefore, that further breeding attempts could occur.

The Garganey, a species which has declined over the whole of its breeding range in this country, requires fresh or brackish pools for feeding and nesting. They are difficult birds to find as they remain hidden in vegetation for much of the breeding season. In Sussex, where up to 12 pairs bred annually until 1961, there were only 6 records of confirmed breeding between 1962 and 1978. Although pairs were seen in suitable nesting habitat in 1982 and 1984, the 1978 record remains the last report where proof of breeding was obtained. The decline which has occurred in this species is most likely attributable to the continuing drainage of wetland areas. There is evidence, however, to suggest that the recent run of cold springs may have reduced the number of birds reaching us on passage.

The Buzzard is a species with a chequered history in Sussex. The original breeding population was exterminated in the 19th century and nesting was last recorded in 1882. About 1950 a small breeding population re-established itself in central Sussex and breeding occurred regularly, mainly in the west of the county, up until 1976. During this period between one and seven pairs were found present annually (Shrubb 1979). There have been no subsequent records of confirmed breeding in Sussex and it seems likely that continuing persecution by gamekeepers is the main reason for the species' lack of success in colonising our area. It should be noted, however, that there is evidence of a small feral population in Ashdown Forest. Four birds were released in 1982 and a pair bred in 1985 raising 2 young.

The decline in the Stone Curlew in Britain is well known. The species, originally a typical but scarce bird of downland, last bred in Sussex in 1981. The decline from the 60 pairs estimated by Walpole-Bond (1938) has been discussed by Prater (1986) who considered agricultural change to be the main cause of the decrease.

Up to 10 pairs of Common Gulls bred regularly at the Midrips from 1932 to 1962. There have been no breeding records for the county since 1962 when 2 pairs nested at this locality. The reasons for the disappearance of these birds is uncertain but it is possible that they moved to the gravel pits at nearby Dungeness to breed.

The Woodlark declined markedly in Sussex during the 1960s. A survey of the breeding population made between 1967 and 1969 revealed only about 10 pairs nesting annually. This represented a decline of some 90 to 95 per cent. compared with the period 1946 to 1955, for which the records indicate a population of 50 to 100 pairs (Shrubb 1979). The decline has continued and there have been no recent records of confirmed breeding. It is interesting to note, however, that birds were recorded in suitable nesting areas in the county in each of the years 1983-85. Given that birds are easy to miss in the breeding season and that nesting areas are occupied sporadically from year to year, it is conceivable, therefore, that the Woodlark still breeds occasionally in Sussex and that isolated pairs may well be overlooked.

The Whinchat has always been a scarce breeding bird in the county. Since 1949 there have been reports of confirmed breeding in only 6 years, the most recent of which was in 1977. A pair possibly bred on Brede Levels in 1980. The decline which has occurred in this species over much of southern and eastern England has been linked to habitat destruction. It is probable that the removal of waste ground and the cutting of road verges has contributed, at least in part, to its extinction as a breeding bird in our area.

The Dartford Warbler is highly vulnerable to severe weather and it is likely, therefore, that the number of pairs breeding in Sussex in any one year is controlled by the incidence of severe winters. A series of harsh winters in the 1940s eliminated the breeding population in the county and none was found between 1947 and 1960, when one or two pairs were located. This tiny population survived the winter of 1962-63, and by 1973 a total of about 23 pairs was known to be breeding in 4 localities. Since then a gradual decline has occurred. Breeding season reports in 1977 indicated the presence of the species at 2 traditional localities. A pair was also found in a locality that had not been occupied in the previous 30 years but 2 other areas had been deserted. In 1978 isolated individuals were seen at the traditional sites and fledgling young were seen in a further locality. A single pair bred in 1979 and 2 pairs were present at this site in 1980. Up to 3 pairs were seen here in 1981, 2 of which raised young. No birds were seen at this locality in 1982 following the previous severe winter and there has been no indication of breeding anywhere in the county since. It is quite conceivable that this species may re-colonise Sussex in the future but this will be dependent on the incidence of severe winters and also on the amount of damage done to suitable breeding habitat in the county by heathland fires.

The Red-backed Shrike was probably never that common in Sussex as a breeding bird and by 1960 only 3 pairs were known to be present (Shrubb 1979). Regular nesting ceased by 1963 and there have been no breeding records for the county since 1968. Much has been written about the decline of this attractive species in Britain. The recent trend towards cooler and wetter summers may well have reduced the numbers of many of the insects on which it feeds but other factors such as habitat destruction have obviously contributed to its decline in this country.

Probably the most spectacular decline that has occurred in any breeding species in Sussex in recent years is that shown by the Cirl Bunting. It was probably once not uncommon in many coastal and downland areas of the county and in the mid-1960s some 45 to 50 pairs were known. A breeding survey from 1971 to 1973 recorded a maximum total of 28 pairs from 20 sites with most of the population concentrated in the Cuckmere Valley, at Beachy Head and in the Eastbourne area (Shrubb 1979). The decline continued throughout the 1970s and by 1981 only one pair was known. A female was seen carrying food at a traditional site in East Sussex in 1982 but there has been no indication of breeding in the county since. The sad demise of this attractive species in Sussex has been discussed by Wilson (1973). Although the reasons for this decrease may be partly climatic, loss of habitat has undoubtedly contributed, with the removal of hedges from farmland and the rapid growth of new housing developments around many coastal towns, where the species once bred in long established and overgrown gardens on the outskirts.

Discussion

Over the past 25 years, a total of at least 16 species have bred in Sussex for the first time and a further 2 have re-colonised the county during this period. It should be remembered, however, that 3 of these species (Honey Buzzard, Cetti's Warbler and Serin) have been proved to breed on one occasion only. Of the remainder, 7 species have colonised our area as a result of accidental and non-accidental introductions and it may be argued that the presence of populations of these feral species is at best undesirable and perhaps even harmful to our native birds.

The gains that have occurred have been offset by the loss of at least 9 species as breeding birds. Although the number of species breeding in the county has increased over the past 25 years, it may be argued that our breeding avifauna has become considerably impoverished. The species lost to the county are mainly those of specialised habitats such as heathlands and wetlands whereas many of the recent colonists can be considered as 'opportunists' with the ability to adapt well to our changing environment. It seems probable that those species which are at present scarce in the county will continue to decline and concentrate in those areas which they find most attractive, leading to contraction of range. Conversely those species which are at present thriving will sooner or later outgrow the space available to them within their normal area of distribution and expansion of range will result.

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PAGHAM HARBOUR

C. M. James

Writing in 1849 the ornithologist A. E. Knox said that:

> the considerable peninsula which extends to the south-west of Bognor, terminating in the headland of Selsey Bill, is perhaps as little known to the world as any portion of Great Britain, lying, as it does, far to the south of the more frequented highways; but it comprises a great extent of sea-coast, dotted here and there with patches of brushwood and rough copses of stunted oak — tempting places of rest to our vernal migratory birds on their first arrival from the continent — and also includes within its limits a wide-spreading inlet of the sea, known as Pagham Harbour, which might also be termed a great salt lake; for the entrance to the haven is so narrow and shallow, and the channel within so tortuous and uncertain, that none but vessels of trifling tonnage can attempt a passage; and even of these the number and the arrivals are so few and far between, that they only arrest the attention of the observer as they cautiously thread their difficult way to deposit or receive a cargo of coals or corn at the hamlet of Sidlesham, which is seen rising, like a little Dutch village, from the flat shores in the distance.

Knox was not to know that in 1873, Parliament would pass the Pagham Harbour Reclamation Act and that within three years, a syndicate would reclaim an area of some seven hundred acres for agricultural purposes. Banks of shingle were exposed when the waters receded, following the closure of the Harbour entrance, and thousands of loads of this valuable material were sold to building contractors in Bognor. Some of the reclaimed land became cattle pasture or sheep walk but after a week of violent gales, the sea defences were breached on December 16th, 1910. As a result, the whole area became tidal again. There were no subsequent attempts at reclamation.

In his *Recreations of a Naturalist*, published in 1906, J. E. Harting told of the times when he had shot Brent Geese in the Harbour, either by working a punt up to them or if they were wild, by lying concealed behind the sea-wall and getting a fisherman to go around them in a punt and move them slowly towards the ambush. He added that:

> they would never come very near the shore, although by a little generalship they could sometimes be made to fly across a corner of the harbour within gunshot of the bank in their attempt to wheel before retreating to a safe distance in the middle of the harbour, on which lucky occasions they usually left two of their number dead in their wake to be picked up by the man in the punt.
>
> But these good old times are gone for ever. There is no shooting of any kind to be had there now, for the harbour no longer exists, and the migrating flocks which wing their way in that direction now pass on to the westward in search of some other haven. He added that a few years ago a company was formed for the purpose of draining and reclaiming this famous resort of wildfowl. After many vain attempts to keep out the sea by working day and night, Sundays and weekdays, with relays of men, the mouth of the harbour was at length closed, and, the tide being forcibly kept out, the harbour, partly by pumping and draining, partly by evaporation, became gradually dry. A great proportion is now under cultivation, and when the writer last visited this once 'happy hunting ground', he found many acres of roots where he had often worked his punt, and put up a hare on the former feeding grounds of Wigeon and Brent Goose.
>
> For the purposes of sport, therefore — and it may be said for the purposes also of ornithological observation — this fine harbour is now utterly and irretrievably spoilt, affording another illustration of the way in which the fauna and flora of a district may, by man's interference and in the course of a lifetime become wholly changed in its character, and species become exterminated or driven away by altering the conditions of life under which alone their existence was possible.

Little detailed information is available about the Harbour and its birds from the time when the sea returned to the start of the Second World War. Even John Walpole-Bond in his *History of Sussex Birds*, published in 1938 had little to say about the ornithology of the area. This was probably due to the small number of observers who were active at the time compared with the present day figure. We know, however, that at one stage the Harbour was threatened when a developer considered turning it into a base for the operation of flying boats. The idea was dropped possibly due to a lack of finance. The records reveal that during the war years, there was damage to the shingle banks, when a part of the Harbour was used for military purposes and that for a time, some land at Church Norton

outside the present reserve boundaries, was in use as an airfield. The sea, off the Harbour, where grebes and diving ducks feed and shelter in the Winter, became the assembly place for sections of the famous Mulberry Harbour. These were subsequently towed away and positioned off the Normandy beaches.

Until 1956, Pagham Harbour was private property but it was then purchased by the West Sussex River Board (later absorbed by the Southern Water Authority) because of the great importance of the drainage channels, known as rifes, which discharge into it. Visitors to the area, in Winter, will see how shingle is moved by every great gale and how the Authority attempts to stabilise the banks to prevent the blocking of the Harbour entrance. If this were closed or seriously obstructed, large areas of farmland could be inundated by flood-water.

A number of people with wide ranging interests in natural history, were concerned, possibly as long ago as 1920 but particularly in the war years, for the future of the wildlife in the Harbour. As a result some, including Mr. E. M. Venables and local residents, formed the Pagham Harbour Preservation Committee in 1943. They did so in the hope that after the end of hostilities the Harbour could become a haven for wildlife. This organisation was later to become a sub-committee of the Bognor Regis Natural Science Society.

In the early post-war years, the observers who visited the Harbour, reported the presence of 'good' numbers of some species of birds. For example, up to one hundred pairs of Little Terns were mentioned in the South-Eastern Bird Reports for 1946 and 1947. In subsequent years, however, local people and visitors noticed that unauthorised leisure activities of various kinds were causing damage and a very serious decline in the bird populations. By 1961, the situation had worsened to such an extent that B. A. E. Marr was asked to prepare a report on the scientific value of the Harbour, on behalf of the newly formed Sussex Naturalists Trust and the Sussex Ornithological Society, of which he was then the Honorary Secretary. His detailed report, which incorporated data collected by the late W. W. A. Phillips and others, was sent to the West Sussex County Council who in 1964 entered into an agreement with the West Sussex River Board, to manage the Harbour as a nature reserve. There can be little doubt that the Council was influenced not only by the report but by the many previous representations which had been made; also by an appreciation of the need to preserve what was, even at that time, one of the few remaining undeveloped parts of the Sussex coast.

Since the designation of the Harbour, with an area of about seven hundred acres, as the first Local Nature Reserve in Sussex, more than three hundred acres of the adjacent, mainly agricultural land, has been added. This very important increase in the area of the Reserve, results from agreements between the County Council and a number of co-operative landowners. The additional ground with a wide variety of habitats, including farmed land together with some fresh marsh, small reed-beds, woodland and hedges, provides roosting places for many birds, when these are driven from their feeding places in the Harbour by the rising tides; also the breeding sites for a wide range of species.

The County Council employs a full-time Warden for the Reserve and at times he is assisted by a number of voluntary wardens. More than forty voluntary stewards help in the running of the Information Centre at Sidlesham Ferry. This is normally open on every Sunday throughout the year and on Saturdays during the Summer months. Adequate space is available for the parking of motor cars. In 1986, the Centre, which has important educational functions, was open throughout the week, during the school holidays. The Reserve is supported in a number of ways, including finance, by the Friends of Pagham Harbour and by several other organisations, whose members form working parties. A Warden's Report is published each year and copies are on sale at the Centre. A detailed map showing the Reserve boundaries together with the footpaths was included in the Report for 1986. By using the footpaths, visitors are able to obtain views over most parts of the Reserve and of a wide variety of birds. The species seen will depend, of course, on the time of year. In the interests of breeding species, access is always restricted in one locality. In another, there are restrictions from the beginning of April to the end of July. Bye-laws made by the County Council in pursuance of Section 20 of the National Parks and Access to the Countryside Act, 1949 regulate some human activities in the Reserve. The rules are very similar to those for many other nature reserves in Britain and are designed to promote the well being of all forms of wildlife.

The wildfowling rights in the Harbour are leased by the Pagham and West Sussex Wildfowling and Conservation Association. Members of this organisation carry out

conservation work and have recently restored, at considerable expense, the Salthouse, an old building, of unknown date, situated not far from Pagham Church. The Property Services Department of the County Council issues a limited number of permits for sailing, fishing and bait digging.

A hide provided by the Sussex Ornithological Society is available for use by the many bird watchers and others who visit Sidlesham Ferry. The nearby large pool by the roadside is quite unique and attractive to a wide range of birds. Avocets are sometimes seen here, Twites are recorded in small numbers when feeding by the pool in the Winter and at times Golden Plovers, hundreds of Lapwings, Ruffs, Redshanks and other species feed and rest in this interesting locality. In the Autumn, small numbers of Little Stints, Curlew Sandpipers, Spotted Redshanks and Greenshanks are present, sometimes for several days. A Little Egret, several Spoonbills, a few Wood Sandpipers and Grey Phalaropes have also been recorded in recent years.

Church Norton, some parts of which are situated in the Reserve boundaries, is a very pleasant place, for here a wide variety of habitats, including some private woodland (not open to the public) and two large reed fringed pools together with a lot of bushes, attract and in some cases provide breeding sites for many birds. Swallows, House Martins, Redstarts, Whinchats, Wheatears, Spotted Flycatchers and some of the warblers are recorded annually, sometimes in Spring but more often in Autumn. Sea birds including skuas are also observed and in Winter Great Crested and Slavonian Grebes are seen on the sea not far from the beach. Great Northern Divers and Red-necked Grebes are also recorded occasionally in the late Autumn and Winter months.

Pagham Lagoon is situated in the eastern part of the Reserve and here a few Scaup together with Smews and Goosanders in small numbers, are sometimes seen in the Winter. At this time of year, Chiffchaffs are recorded occasionally in the bushes near the Lagoon and a few Bearded Tits and Water Rails sometimes visit a nearby reedbed. In this locality, observers often obtain good views of hundreds of Brent Geese, Shelducks and other wildfowl in the adjacent part of the Harbour. In addition, Oystercatchers, Grey Plovers, Dunlins and Curlews can usually be seen in some numbers.

Pagham Wall in the northern part of the Harbour is a raised bank built to protect the adjacent farmland from inundation by high tides. This is an excellent look-out place for long distance views of much of the Harbour and of the land between the Reserve and the South Downs. A wide variety of birds including some of those already mentioned visit the fields on the inner side of the wall, particularly when the tide is high.

Since 1948, the details of the observations of some of the people visiting the Reserve, have appeared in the Sussex Bird Reports and in other publications. In the early years, the information was limited because of the relatively small number of observers. Their numbers gradually increased and some, including members of our Society, started to study the birds in the Harbour area, on a systematic basis. A beginning was made in the Winter of 1951-52 when the wildfowl were counted. In December 1963, a trial count was made of the wintering populations of the wading birds and in later years, the numbers of wildfowl and waders were recorded regularly. There were also a series of counts of other selected species including some of those breeding in the area.

The published figures reveal that over the years, there have been major changes in the numbers of some species of birds which visit the Harbour. In a few cases, the reasons for the increases or decreases have been established but in others we can do no more than guess at the causes. In the 1930s, the population of the dark-bellied form of the Brent Goose which spends the Summer months in Arctic Russia and winters in Western Europe, declined to such an extent, that in some of its former haunts, this fine bird was rarely seen. The huge decrease was attributed to the near extinction of the main food plant *Zostera marina*, due to disease. In later years, ornithologists discovered that Brent Geese were using other vegetable food and that there had been an increase in their numbers. In the Harbour, the peak figure did not exceed two hundred until the Winter of 1973-74 but in January 1985, more than four thousand geese were seen in the area. Although increased numbers were observed in other places in England, where Brent Geese winter, the total numbers are still below those recorded before the decline.

Although thirty Ruffs and as many Reeves were seen at Sidlesham in April 1938, only small numbers were observed in the Harbour area, in the next thirty years, as far as we know. In 1968, however, the wintering population began to increase and eighty birds were recorded from Sidlesham Ferry in March 1970. In subsequent years, the upward trend

continued and three hundred and seventy were seen in the same locality in February 1976. In 1978, there were reports of up to five hundred birds in January and five hundred and forty in December. Observers estimated that no less than one thousand were present in the Selsey Peninsula at the end of that year. Although the peak numbers were recorded in the Winter months, there were records of much smaller numbers, in every other month. Just a few Ruffs, in full breeding plumage, were seen in June, on a number of occasions. In the Sussex Bird Report for 1980, we were told that A. J. Prater, at that time a member of the Scientific Committee of our Society, had made enquiries and that these confirmed that the birds in the Selsey Peninsula did indeed constitute by far the largest such gathering to be found in Europe, during the Winter; the entire population probably numbering less than three thousand birds. Although the reason for the birds' presence is still a mystery, the evidence suggests that early return passage is not involved, as was originally suggested.

In addition to the changes in the numbers of some wintering birds, some breeding species have increased or decreased. For example, the Shoveler, one of our most attractive ducks, now breeds in very small numbers, within or near the Reserve boundaries. Juveniles have been seen at Sidlesham Ferry and elsewhere in the area, on a number of occasions. In contrast, there have been no recent records of breeding by the Garganey, although a few are seen in the Reserve each Spring. On the debit side, the Little Tern has obviously decreased as a breeding species in recent years, due to a combination of adverse factors, including unseasonal weather. In June 1983, a freak hailstorm hit the colony; no young were raised in that year or in 1984 and 1985. At the time when the terns attempt to breed, large gulls, most in immature plumage, visit a large rubbish dump at Chichester. After feeding some go to Pagham Harbour to rest and when there they sometimes occupy a part of the site where the terns are nesting. As a result there may well be disturbance with some loss of eggs. Predators including Foxes, Weasels and Carrion Crows are all present around the Harbour and it is possible that some may have a detrimental effect on the terns. Low flying aircraft of various kinds may disturb the nesting birds.

The Collared Dove, unknown in Britain until about 1955, breeds in some localities around the Harbour and is a common and well known bird with a very distinctive call. Until about 1930, the species was largely confined in Europe, to the Balkans but subsequently there was a great extension in its range when it spread rapidly to the north and west. The reason or reasons for this increase have not been explained conclusively although some ornithologists contend that a genetic mutation or a change in nesting sites from buildings to trees, is the reason.

The Oystercatcher and the Ringed Plover benefit from the protection they receive in the Reserve and each year a small number breed, sometimes with success. The number of pairs breeding in the area will always be restricted, however, because of the limited size of suitable habitat.

Very impressive numbers of wildfowl and waders visit the Harbour and in addition a wide variety of other species are seen, some annually and others just occasionally. Some of the visitors have already been mentioned but among the rest the birds of prey are probably the most noticeable, almost certainly because of their spectacular behaviour including the ways in which they obtain their food. The Kestrel and Sparrowhawk breed in the area and are the most numerous of the fourteen species of raptors reported in the past ten years. In most years, a few Ospreys are sighted, sometimes in Spring but more often in Autumn. A view of one fishing in the Harbour is a memorable sight. Marsh Harriers are reported occasionally, small numbers of Hen Harriers visit the Harbour each Winter and single Red Kites were seen in October 1981 and December 1984. Other visitors have included a Black Kite in July 1980, a few Hobbies in Spring, Autumn and sometimes Summer, some Merlins in most Autumns and Winters and an adult Red-footed Falcon in August 1979. Although the Peregrine has regained its former numbers in other parts of Britain after an alarming decrease, due to the poisoning of a considerable number of the birds by persistent pesticides, it is still no more than an occasional visitor to the Harbour.

Five species of owls have been seen in recent years; at least three of these namely, Barn, Little and Tawny as breeding birds. The Barn Owl is probably declining in the area, as elsewhere, where it is still resident, due to some being killed by motor vehicles, when feeding on road casualties. The Little and Tawny Owls, which often use holes in trees for nesting purposes, may have been harmed by the loss by disease of the large elm trees once so prominent in the hedgerows in West Sussex.

In an area which has lost so many trees by disease and by human activities of various

kinds, the three species of woodpeckers are still observed quite often and all appear to be maintaining their numbers. An allied bird, the Wryneck, is seen almost annually, in small numbers, when on passage to its Winter quarters in Africa. Single birds of this interesting species, which has declined to the point of extinction as a breeding bird in Britain, have also been seen in Spring, on a few occasions, in the Harbour area. Long term climatic change has been suggested for the decline.

When published in 1981, A. J. Prater's Estuary Birds of Britain and Ireland was described as an important milestone in conservation. In it he set out the facts on the numbers and distribution of estuary birds (with the exception of the gulls) and the timing of the arrival and departure of the various species. The data given for Pagham Harbour indicated the great importance of the Reserve for some species almost certainly due to the tidal mudflats and saltings being a first class feeding area.

The importance of the Harbour was emphasised in October 1986, when West Sussex County Council's Harbour Advisory Committee was told that the Nature Conservancy Council was proposing that the Harbour be given special designation under two international conventions. The first is under an E.E.C. directive on the conservation of wild birds and the other is designation as a wetland of international importance, under the Ramsar Convention. When making the announcement, Mr. John Godfrey, Deputy County Secretary said "this means that Pagham Harbour will be recognised internationally as being of conservation importance". The move will further enhance the status of the Harbour and give it higher priority for any assistance or possible grant aid in the future. The Harbour will be in distinguished company for other designated areas in the United Kingdom include Loch Lomond and the Ribble Estuary.

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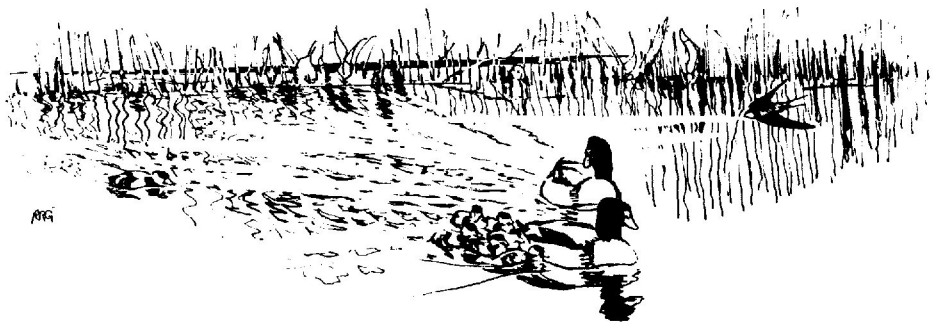


COASTAL WETLANDS AND WADERS IN SUSSEX

A. J. Prater

Introduction

The Sussex Ornithological Society was one of the earliest county societies to appreciate the need to document the numbers of waders and wildfowl on its estuaries and other coastal wetlands. Immediately after the founding of the SOS, early in 1962, the Society was instrumental along with the then Sussex Naturalists' Trust in drawing information together about Pagham Harbour and persuading the County Council to declare it as a Local Nature Reserve. The pressures from developments and leisure activities even then were seen as posing major threats to the estuarine waterfowl.

Such pressures have become more intense throughout Britain (and elsewhere in the world) since then and much effort has had to be expended to prevent widespread destruction of this important habitat. The British Trust for Ornithology (BTO), Nature Conservancy Council (NCC) and Royal Society for the Protection of Birds (RSPB) "Birds of Estuaries Enquiry" has gathered and is continuing to gather information on the numbers of waders and wildfowl on all British estuaries. A detailed summary of data on individual estuaries, each species and the threats to estuaries up to 1976 has been published (Prater 1981) and updated by annual reports since then. In Sussex, Shrubb (1979) provided details of the population levels of each species up to that date.

This paper examines the changing wader populations of Sussex from the mid-1960s although concentrating on comprehensive information gathered during the first half of the 1980s. The monthly migration patterns are not considered, except where they may have implications for winter counts.

Counts in Sussex

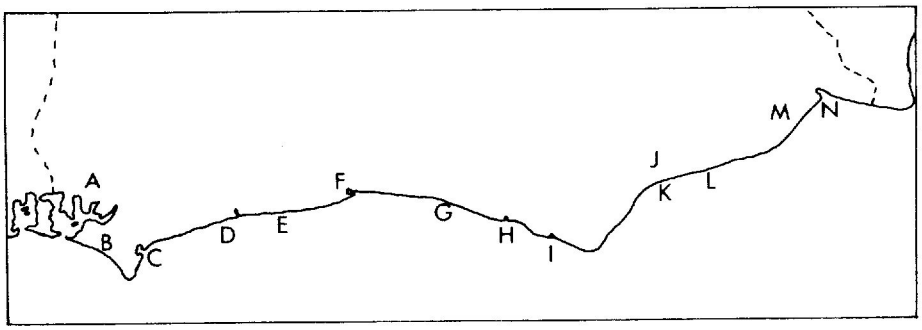
From this start, the SOS initiated a trial count of waders in December 1963 in Chichester and Pagham Harbours — being forward-looking the Society even counted Langstone Harbour in Hampshire as well! In March 1964 monthly counts commenced and have continued since then although they concentrated on the August to May period for most of the 1970s and the September to March period subsequently, in line with national counts. It was immediately apparent that wader counts were required elsewhere along the coast and in December 1964 the first full coastal count was made, missing out only Bracklesham Bay and Pevensey Levels. This mid-winter count continued to be made although none were obtained in 1967 and 1970, the former due to foot-and-mouth restrictions and the latter to organisational problems. From the winter of 1971/72, two complete coastline counts were made each year; at this time regular monthly counts commenced at Rye Harbour Local Nature Reserve. The SOS had also been among those bodies instrumental in persuading the County Council to declare this as an LNR, too. From 1981 regular counts were made monthly from September to March at almost all of the rest of the coastal sites, and the few gaps were filled from 1984.

As a result of the foresight of the SOS and the immense efforts of what has been a remarkably small band of volunteer counters, the Society is in a particularly good position to assess the impact of development pressures on these wetlands and to liaise with the NCC, RSPB and the Sussex Trust for Nature Conservation to prevent damaging activities. The figures obtained in the county can be placed in context through the counts for the BTO/RSPB/NCC "Birds of Estuaries Enquiry": another example of a national survey, which commenced in 1969, being predated by the SOS's own survey!

The Coastal Wetlands of Sussex

Including the 60km shoreline of Chichester Harbour the coast of Sussex stretches for approximately 220km. The two western Harbours of Chichester and Pagham provide the principal intertidal flats for waders although in the far east, at Rye Harbour, a large area of relatively sandy flats can be found. Between these extremities four major rivers — the Arun, Adur, Ouse and Cuckmere, cut through the Downs to the sea. Their once significant

estuaries have been all but destroyed by canalisation and reclamation for farmland and development; a similar fate befell the coastal marshland complexes in these valleys and at Pevensey and Pett Levels. A fascinating account of coastal changes can be found in Robinson and Williams (1983). Between the remaining estuaries the coastline is variable with a large sand/shingle intertidal area backed by a shingle beach stretching eastwards to Shoreham. Then the chalk cliffs from Brighton to Eastbourne are fronted by a wave-cut chalk platform while from Pevensey Bay to Pett Level the mainly sandstone cliffs have a sandy/rocky foreshore. The sites counted regularly are shown in Figure 1.



A Chichester Harbour
B Bracklesham Bay
C Pagham Harbour
D Climping
E Goring
F River Adur
G Brighton Marina
H Newhaven Tidemills
I Cuckmere Haven
J Pevensey Levels
K Norman's Bay
L Glyne Gap
M Pett Levels
N Rye Harbour

FIGURE 1: Locations of counting sites for coastal waders in Sussex.

Chichester and Pagham Harbours contain the largest remaining saltmarshes in Sussex. There have been considerable changes, however, in the areas of saltmarshes. When counts commenced in the early 1960s expansive beds of cord-grass *Spartina anglica* were to be found. Since then, and especially prior to 1980, this invasive plant suffered a dramatic die-back. As it died, so the *Spartina* platforms eroded and mud/sand flats were reinstated. Detailed acreage figures on the changes are not available but, for example, several hundred acres of flats in the Emsworth Channel were formed: a similar change took place in Pagham Harbour.

The average peak counts for the 1980s on all coastal sections are presented in Table I. Chichester Harbour stands out as by far the most significant site: following that, numerically, Pevensey Levels are next most important although virtually all of the total comprised the inland species — Lapwing, Golden Plover and Snipe. Pagham Harbour is of considerable importance for estuarine waders and then comes a group of important although relatively small sites — *ie* the beach from Climping to Goring, the River Adur, Pett Levels and Rye Harbour each with 3000-5000 waders. Most other sites support small, though often specialist, wader populations.

The Changing Wader Populations

There have been many changes in numbers and, to a much lesser extent, in the distribution of waders in Sussex since 1964. Only the trends for the eleven most common specialist shore waders have been examined. Even these show several different patterns, although there has been a general increase in numbers. It may have been expected that the start of the "Birds of Estuaries Enquiry" in 1970 would have greatly improved cover but the only species to show a very sharp increase between 1969 and 1971 were Knot and Dunlin. It is possible that a roost was overlooked but, because other species do not show this pattern, the real reason is probably more complex.

Oystercatcher This species has shown a steady increase in numbers since the late 1960s, see Figure 2. The average winter totals in Sussex have doubled from 1170 in the early 1970s to 2418 in the early 1980s. The increase was noted at all of the principal sites with average numbers at Chichester Harbour increasing by 39% (to 1369), Rye Harbour 78% (to 580),

Pagham Harbour 30% (to 317) and Climping 91% (to 300). Although the average numbers in Chichester Harbour, the most important, have risen substantially, there has been a noticeable decrease there during the last three winters. Oystercatchers remain scarce or are found in very small numbers at other locations along the coast. The trend in Sussex has followed the patterns of numbers in Langstone Harbour (Tubbs 1977) and for Britain as a whole (Salmon *et al* 1987), although there is an indication of a slightly greater proportional increase in the county. Interestingly, the records of breeding birds in the Sussex Bird Report also show a doubling from about 20-25 pairs in the early 1970s to 40-45 pairs in the early 1980s. This increase in breeding birds appears to have taken place over much of Britain and there is no sign of it tailing off. Many of our birds, however, come from adjacent continental coasts and it will be fascinating to see if the slow but steady increase continues.

Ringed Plover Shrubb (1979) noted this species as "surprisingly few winter". Since the early 1970s there has been a sharp increase in numbers; the coastal January count then averaged about 400 but the average winter peak county total rose to 930 in the early 1980s. Figure 2 shows the long-term trends in the western harbours and, although winter peaks have varied considerably, the trend of increase evidently extends back to the mid-1960s at least. All sites showed an increase, the major ones being of 44% (to 390) in Chichester Harbour, 97% (to 199) at Goring Beach, 19% (to 160) at Pagham Harbour and 75% (to 150) on the R Adur.

An increase of between a third and a half in wintering numbers has been apparent nationally in the 1980s (Salmon *et al* 1987). The numbers breeding in England have risen, too, but only by 19% (from 2016 to 2390) between 1973 and 1984 (Prater in prep); while in Sussex breeding numbers rose by 77% in the same period (Prater 1985). The species is doing reasonably well at the present time but it is clear that our wintering birds greatly outnumber the county's breeding population and its progeny and have increased disproportionately more than it has nationally, either in winter or in the breeding season. The reason for this is not clear but the intertidal flats in the western harbours appears not only to have increased in area but this now bare area is fairly sandy, so are perhaps more suitable for Ringed Plovers.

Ringed Plovers are believed to be essentially sedentary in southern Britain although with numbers swelled in winter slightly by breeders and their young from eastern England. Most Ringed Plovers breed in the east of the county, especially at Rye Harbour (Prater 1985), however, relatively few winter here (the 1980s' average winter count is 43). It would be very interesting to examine local movements of this species in the county to see how far the breeding population moved in winter.

Grey Plover Nationally (and internationally as well) Grey Plover have shown a quite dramatic increase since 1971 (Salmon *et al* 1987), with numbers just about doubling. The few counts made prior to this indicate that an increasing trend has been evident since at least 1960. This pattern was seen in neighbouring Langstone Harbour (Tubbs 1977) and in Sussex, too, see Figure 2. At the three main sites, average winter numbers increased between the early 1970s and early 1980s by 57% (from 1131 to 1779) at Chichester Harbour, by 131% (from 270 to 625) at Pagham Harbour and by a massive 416% (from 31 to 171) on the beach at Goring. The present average number wintering in Sussex is 2677. Table I shows that these birds are concentrated in just three locations all in West Sussex. In view of its steadily increasing population, the Grey Plover may become a much more frequent visitor to other locations. Grey Plovers breed in similar areas of Siberia to Brent Geese and the long run of good breeding seasons in the 1970s may have benefited both species.

Knot The Knot shares with the Bar-tailed Godwit the distinction of being almost entirely restricted in Sussex to Chichester Harbour. Both seem to occur in areas where sand and finer sediments occur together as at this location. At the present time they are nearly always found on either or both of the roosts on Mill Rythe (Hayling Island) or Pilsey Island. Most other sites in Sussex are essentially either sandy or muddy. During the counts carried out over 23 winters, in only three did the peak winter Knot count on Pagham Harbour exceed 50, although interestingly it did so in 1984/85 and 1985/86. At Chichester Harbour it is not certain whether the very low counts prior to 1969/70, see Figure 2, were due to their roost being missed or if the real numbers were very low. However, Tubbs

(1977) also noted over a doubling of numbers between 1964/65-1969/70 and 1970/71-1974/75 on Langstone Harbour. This may imply that a real increase did contribute to the rise.

Since 1969/70 in Chichester Harbour there have been three phases with peaks of 1350 in 1972/73, 2000 in 1979/80 and 1000 in 1983/84 and troughs of 315-500 in 1976/77, 1981/82 and 1985/86: this gives the impression of a cyclic pattern but with numbers generally decreasing.

Sanderling This is the most confusing species of wader in Sussex, in that its numbers vary wildly between months and sites. In many months it appears as though the main 'flock' is missed. Between the early 1970s and early 1980s there has been a very sharp rise of 184% (165 to 469) in the winter peak at Chichester Harbour, see Figure 2, but a 65% decrease (347 to 123) at Climping and a 46% decrease (181 to 97) at Goring. There appears to be some indication that there has been a redistribution of birds from the open coast to Chichester Harbour. In the far east, Rye Bay has always been notable for Sanderling and numbers have increased there by 75% (102 to 178) over the same period. Nationally numbers have fluctuated but have shown no overall trend (Salmon *et al* 1987), a situation paralleled by the winter peaks in Sussex which have remained around the 500-800 mark.

Dunlin Since 1971 the British wintering population has fallen by about one fifth (Salmon *et al* 1987); in Sussex, however, while numbers have fluctuated they have probably remained roughly stable. Shrubb (1979) suggested the maximum number "approached 35,000", for 1982/83-1985/86 the average peak was 32,600. The great majority (80%) of Dunlin in the county are found in Chichester Harbour where the average peak in the early 1980s was 26,000, with only Pagham Harbour (3700) and R Adur (1130) regularly exceeding 1000 birds. At these three sites numbers have changed little between the early 1970s and early 1980s, the relevant figures were +8%, −6% and +17% respectively. Figure 2 shows this stability well although there was a hint of lower numbers in the late 1970s and very early 1980s: the other obvious feature at Chichester Harbour is the very sharp increase at the start of the "Birds of Estuaries Enquiry" counts. In nearby Langstone Harbour Tubbs (1977) found that there was a 25% increase between the mid- to late-1960s and the early 1970s, but this is well below the apparent doubling in Chichester Harbour. The reason for this rise is probably a combination of population increase but especially more intensive counts locating all of the smaller roosts around the Harbour. Of the estuarine waders found in Sussex the Dunlin is by far the most numerous, outnumbering all others added together!

Black-tailed Godwit Britain and Ireland are of particular importance for this species as they support the bulk of the distinct race *(Limosa limosa islandica)* which breeds only in Iceland. The whole of the Sussex population is found in Chichester and Pagham Harbours, and the farmland around and between them. The annual peak counts for these two estuaries are shown in Figure 2. It is clear that numbers have fluctuated, as might be expected from a species many of which feed in fields, but from the late 1960s this has been around a figure of 900 in Chichester Harbour and 400 in Pagham Harbour. At both sites there have been relatively low numbers since 1983/84, indeed from 1973/74 the pattern of abundance at each has paralleled the other. Nationally the wintering population is about 5-6000 and in Sussex the average peak monthly count is 1127, about 20% of the national total.

Bar-tailed Godwit Chichester Harbour is the only site in Sussex where this species winters regularly in significant numbers. Here, Figure 2 shows that the winter peak has fluctuated around the 1000 mark since counts started in 1964. Elsewhere only at Pagham Harbour are more than one or two found; here there has been a tendency for larger numbers to be noted since 1980 but even then average numbers in the early 1980s did not exceed 100, see Table I. Nationally, Salmon *et al* (1987) have shown that the population has grown by between 50% and 100% since 1971. Why Sussex has not shared in this increase is not certain but it may be that the preference of this species for rather sandier areas with some silt means that more birds cannot be accommodated. The parallels between Bar-tailed Godwit and Knot are striking, both are virtually restricted to Chichester Harbour and choose Mill Rythe and Pilsey Island as roost sites.

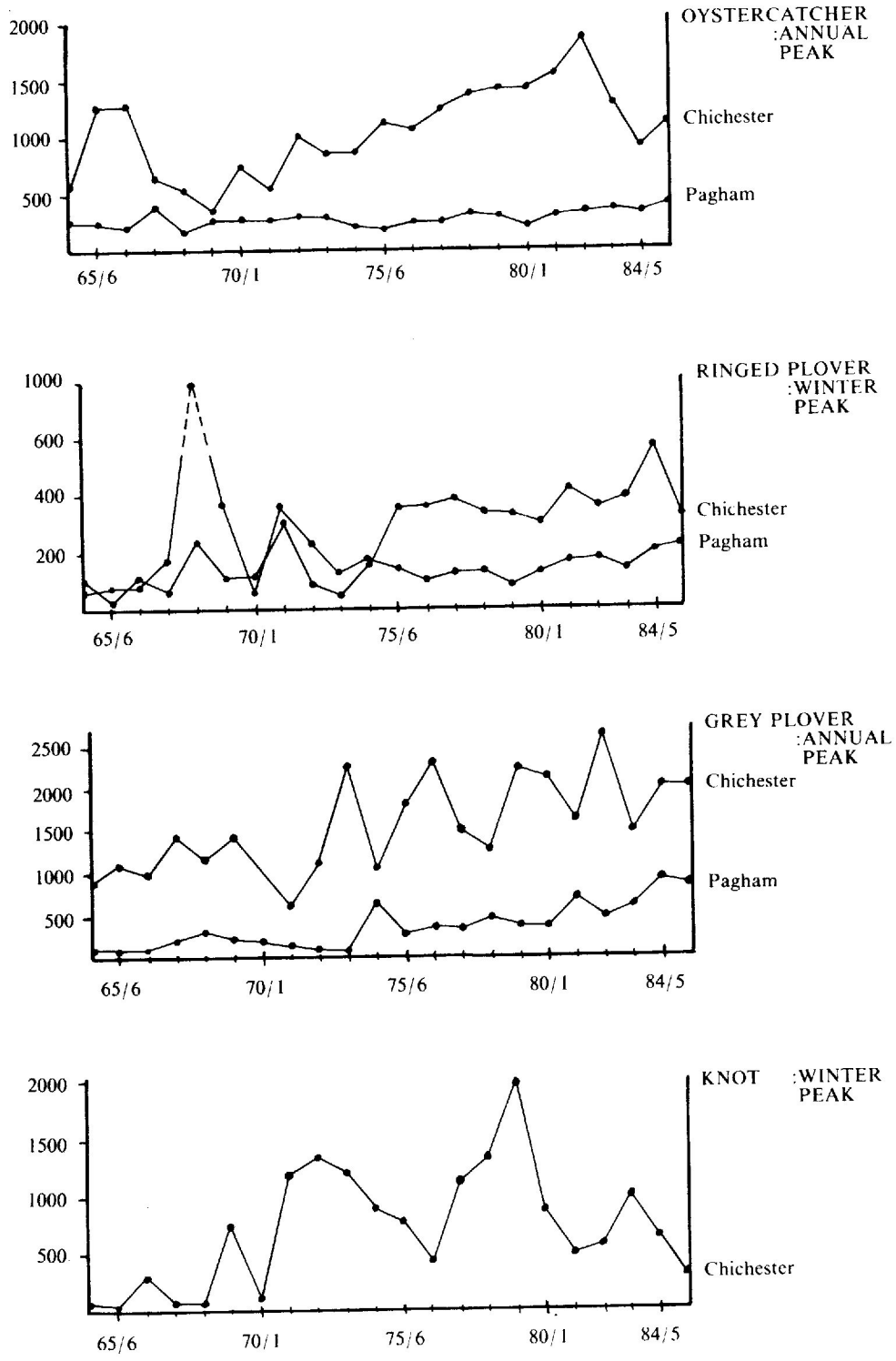


FIGURE 2: Trends in the numbers of the main species of shore waders in Chichester and Pagham Harbours.

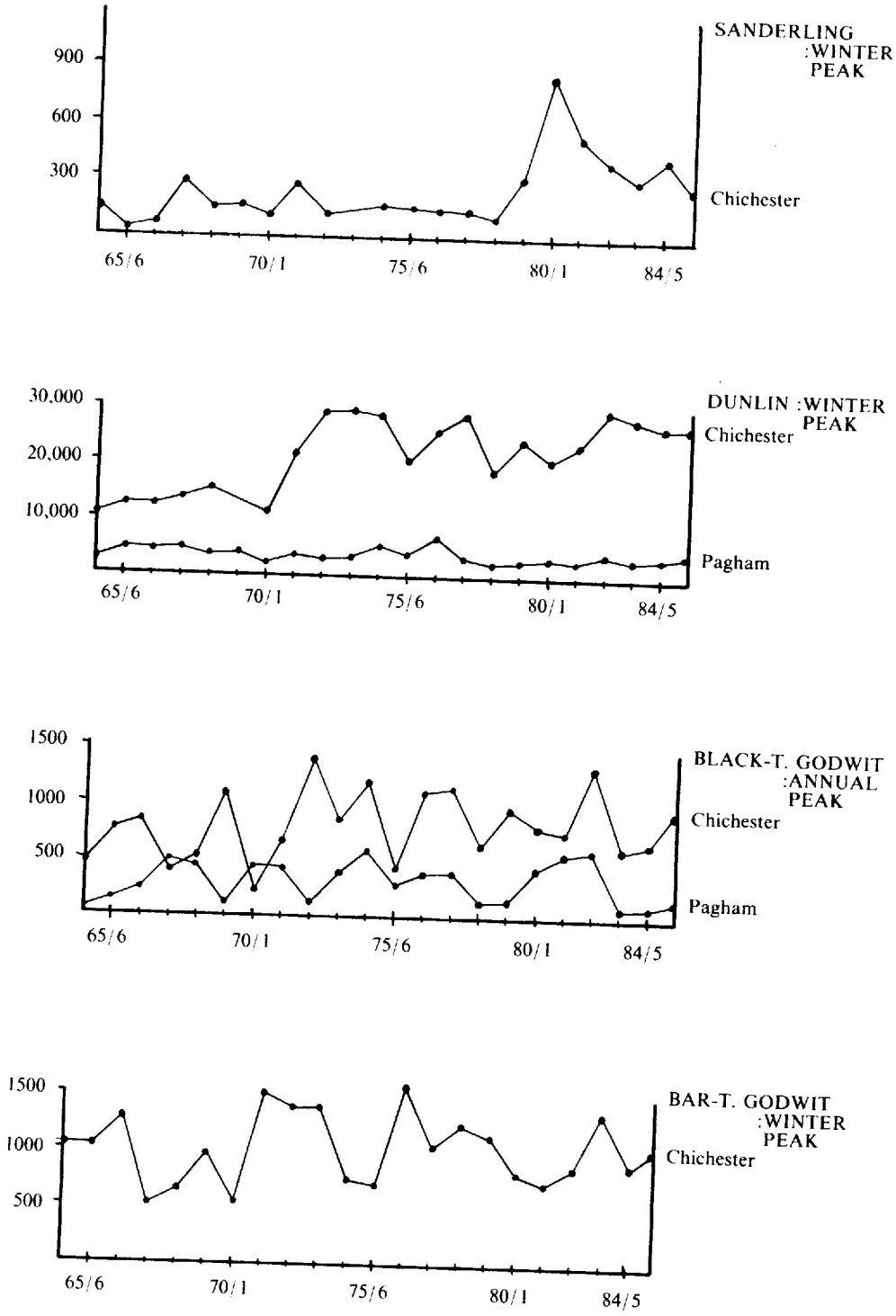


FIGURE 2: Trends in the numbers of the main species of shore waders in Chichester and Pagham Harbours.

Curlew Nationally Curlew numbers have declined by a quarter since 1971 (Salmon *et al* 1987), it is believed this is due substantially to loss of breeding habitat and shooting pressure on the Continent. As most of the Curlew wintering in Sussex come from the Continent, it is rather surprising to see that the wintering numbers in Chichester Harbour have increased by 27% (1223 to 1556) between the early 1970s and early 1980s while in Pagham Harbour they rose by 37% (278 to 382). Elsewhere in the county few Curlew are seen except in the Rye/Pett area where 500-600 form a nocturnal roost. Some of these birds undoubtedly fly in from the Romney/Walland Marsh area which extends into Kent. Not only do the wintering numbers show an increase, the wintering population in Sussex reached an average peak of 2450 in the early 1980s, but Figure 2 shows that it does so for the annual peak count (usually this occurs in autumn) and a slight increasing trend exists back to 1964.

Redshank Two different trends are apparent in the numbers of Redshank in Sussex. The annual peak count in Chichester Harbour, which supports over two-thirds of the county's Redshank, has shown a steady decline from at least the early 1970s, see Figure 2. This is also apparent from the SOS's surveys of breeding birds detailed in the Sussex Bird Report; while detailed counts have not been made recently, the 250+ pairs noted in 1967 had probably been reduced to fewer than half of this number by 1985. Nationally, too, wintering Redshank have declined, by about 25% since 1971, Salmon *et al* (1987). However, if winter peaks only are examined in Sussex all major sites showed a distinct increase between the early 1970s and early 1980s — 38% at Chichester Harbour (1504 to 2078), 48% at Pagham Harbour (333 to 492) and by 29% on the R Adur (112 to 144). Average winter peaks in the early 1980s revealed that the Sussex population is 2900. Perhaps the die-back of *Spartina* has provided more feeding areas although a slight shift in the wintering distribution of the species might also be involved, particularly in view of the series of relatively cold winters in the 1980s.

Turnstone In Sussex there has been a distinct increase in the number of Turnstone wintering since the mid-1960s. Shrubb (1979) estimated that it was "no more than 600" at that time and had decreased to nearer 300 by the early 1970s. Figure 2 shows a strong rise since then at both Pagham and Chichester Harbours, an increase has also been noted at Pett and, particularly, at the Glyne Gap roost on Pevensey Bay. The number wintering in Sussex during the 1984/85 and 1985/86 seasons (when full shoreline counts were made) averaged a peak monthly count of 1045. Nationally, there has been no clear trend in numbers, at least between 1972 and 1985, although numbers were apparently high in 1986.

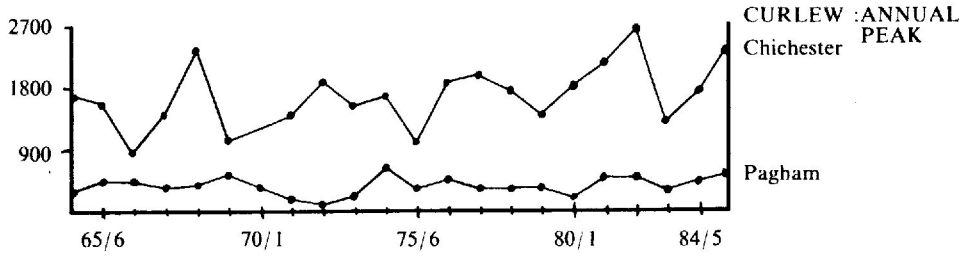


FIGURE 2: Trends in the numbers of the main species of shore waders in Chichester and Pagham Harbours.

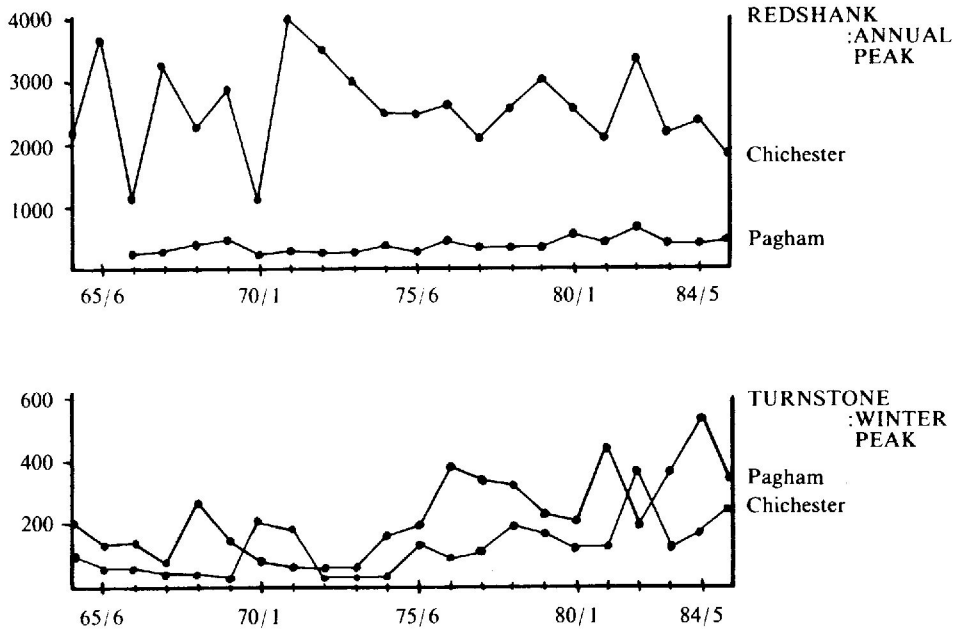


FIGURE 2: Trends in the numbers of the main species of shore waders in Chichester and Pagham Harbours.

Changing Patterns of Occurrence

The two main trends which have emerged from the counts are a general increase in numbers over time and a shift towards peak counts occurring in winter rather than autumn for several species.

At first sight it is surprising that the numbers of most species of waders have increased over the years, this will be due to several factors. Changes in the two western harbours, where most of the shore waders are found, can have a disproportionately large impact on the total picture in Sussex. *Spartina* die-back there has been a prominent feature. Studies are required to see if waders are using these bare areas, but casual observations certainly show that some waders feed on them. Positive protection through setting up nature reserves and more limited protection through designation as Sites of Special Scientific Interest or by general countryside protection policies may have helped despite the inevitable pressures of developing leisure activities. However, some species have undoubtedly increased through a series of good breeding seasons, others may have benefited from protection elsewhere in Europe. Some improvement in coverage was achieved in the early years which would have increased numbers but this is unlikely to have continued throughout the period under consideration.

Five species of waders, all of which have remained stable or have increased in numbers, have shown a tendency for peak counts to occur in winter rather than autumn. Those where it is most striking are Grey Plover, Sanderling and Turnstone. In each case in the 1960s all peaks were in autumn but in the 1980s only one out of six peak counts was in autumn. The trend was less clear but apparent for Black-tailed Godwit and Redshank. This observation came as a surprise and the possible reasons remain unclear. Perhaps cold winter spells have selected for birds which move slightly further south or larger autumn concentrations are now found further north or east.

The value of long-term counts are immense. They provide detailed information which can help national research programmes to elucidate general principles of wader distribution but perhaps above all the up-to-date information provides essential conservation data. Without this, the protection of our remaining, valuable estuarine habitat would be very difficult and much could be lost along with its specialist bird populations.

TABLE 1 Average peak counts of the principal species of waders on the Sussex coast during 1979/80-1985/86

Location	Oyster-catcher	Ringed Plover	Grey Plover	Golden Plover	Lapwing	Knot	Sander-ling	Dunlin	Black-T Godwit	Bar-T Godwit	Curlew	Redshank	Turn-stone	Other species (total)	Total
Chichester Harbour	1521	564	2051	1323	2840	846	495	25971	876	989	1898	2543	220	453	42590
Pagham Harbour	320	278	644	538	2804	35	8	3700	302	84	404	510	360	285	9272
Climping	327	56	58	10	1304	+	235	32	—	1	2	11	12	40	2088
Goring	15	200	173	—	313	+	119	473	—	1	—	11	11	3	1319
R Adur & Levels	1	197	11	—	1770	1	—	1184	—	3	2	183	1	53	3406
Newhaven Tidemills	7	39	1	+	1550	+	—	113	—	1	27	35	—	91	1864
Lower Cuckmere	1	55	8	1	1630	1	+	103	—	1	6	66	1	161	2034
Brighton Marina	5	30	1	—	—	—	—	4	—	—	—	3	15	3	61
Pevensey Levels	—	—	2	1340+	10000+	—	—	30	3	—	16	23	—	837	12251+
Norman's Bay	3	40	6	—	—	6	15	220	—	—	—	2	149	—	441
Glyne Gap	20	5	4	—	—	1	7	3	—	—	—	2	300	30	372
Pett Levels	138	10	73	550	1470	5	21	157	1	2	508	30	277	286	3528
Rye Harbour	566	116	16	412	1951	4	173	681	+	2	98	184	60	106	4373

Note: as the average peak counts can fall in different months, the vertical columns should not be added together to give totals for each species.

Acknowledgements

I would like to thank all of the observers who have contributed to the estuary counts over the years. All have provided essential information.

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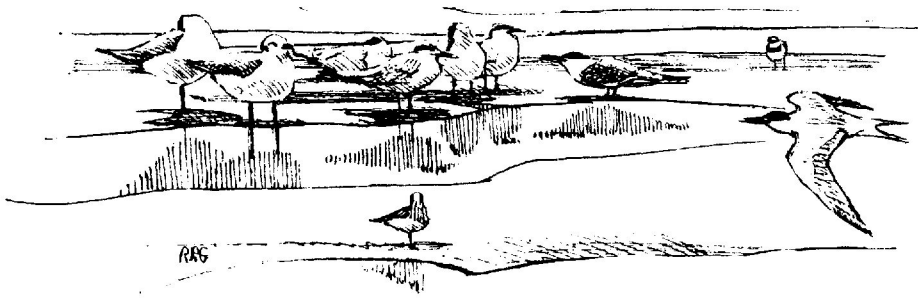


RINGING IN SUSSEX, 1962-1987

R. Leverton

The Ringers and the Sites

Over the past 25 years the annual total of birds ringed in Sussex has remained fairly constant, fluctuating around the 20,000 mark in good years. Likewise the number of ringers has changed little. In 1962 there were 21 ringers or groups operating in the county, whereas at present there are about 20, plus a dozen or so others who ring infrequently or only as visitors.

Mistnets were already in use as the chief trapping method at the beginning of the period, and most advances in technique (apart from the use of taped calls and song to lure birds towards the nets) have been in ageing and sexing the birds caught. Standards have continually been revised upwards, so that it is now only possible to acquire a ringing permit after a stringent and lengthy period of training. Levels both of competence and behaviour are generally felt to be high in Sussex, and these are maintained by fairly frequent exchange visits and communal sessions which disseminate new ideas and techniques. Ringers may have their own sites, and also be members of one or more of the ringing groups. Attendance at the annual Ringers' Conference in Derbyshire is also good.

Although a hundred or more species may be ringed in some years, the strongest feature of Sussex ringing has always been the numbers of small passerines caught on passage in the autumn. Sea crossings are dangerous for land-birds, and ringing has shown that many warblers and hirundines tend to move south-eastwards through Britain aiming for the shortest route across the Channel, leaving via Sussex or Kent. Ringers have long formed organised groups to work the prime coastal sites. Trapping began at Beachy Head in 1960 on a small scale, but it was not until 1963 that a proper ringing station was established there in Whitbread Hollow with a hut and a Heligoland trap, which unfortunately did not prove very successful and later fell into disuse. The station was funded in these early years by grants from the S.O.S., but in 1968 it became largely self-supporting. A high and consistent level of coverage during the Autumn has been achieved throughout the past 25 years, thanks to the dedication of the succession of ringers involved. To date 92,000 birds have been ringed, including over 55,000 warblers. Other groups have fared less successfully. Selsey Bill was an important ringing site in the early 1960s, but ever-increasing habitat loss due to building and development soon disheartened the group's members. Chichester Ringing Group, based on the gravel pits, was founded in 1963 and flourished for a few years, but again commercial development of the site to provide leisure facilities caused the habitat to deteriorate. The group survived, but operations are now conducted on a smaller scale and mainly at Church Norton. Filsham R.G. was briefly active in the 1970s, while more recently formed groups operate at Charleston Reedbed in the Cuckmere Valley and in the Steyning area, where netting at Cissbury has proved productive. A most exciting experiment, combining farming with the creation of new habitat for birds, was begun by Stephen Rumsey at Icklesham in 1985, and the ringers involved have chosen the title of Rye Bay R.G. Already large numbers of certain species not much ringed in Sussex have been caught, such as Mistle Thrush and Tree Sparrow, and future prospects seem unlimited.

The large ringing groups operate mainly during the autumn passage season, and account for about half the birds ringed in Sussex each year. The rest are ringed by individuals operating at their own sites. Not all ringers choose to belong to a group, sometimes because time and distance makes this impractical, or because by temperament they prefer to work independently, or because their interest lies in a site which is too small or contains too few birds to support a group. There may be added benefits in working alone: as the abilities, methods and techniques of ringers within a group can vary, data may be less scientifically valid than those obtained when all the birds are caught and processed by the same person. This particularly applies to wing measurements.

The sites used by individual ringers are very varied, and include downland, farmland, woodland, small reedbeds and gardens. Often they are worked throughout the year. Continuity is an important element in ringing studies, and many of these sites have been in use for a decade or more, the record going to the Sanctuary at Shoreham where ringing began before 1953. Sub-rarities and large falls of migrants are unusual at these sites, with the notable exception of Hodcombe (between Beachy Head and Birling Gap) where the percentage of unusual birds is considerably higher than at nearby Whitbread Hollow and perhaps anywhere else in Sussex. The first Little Crake ever ringed in Britain was caught here in 1968, and scarce warblers are annual. Otherwise, most garden ringers have to be content with large numbers of tits and Greenfinches caught at feeders in Autumn and Winter, with Siskins in some years in some areas. Other sites, because they are worked throughout the year, contribute a wide range of resident species ringed as nestlings or juveniles, and more finches, buntings and visiting thrushes caught in winter flocks than the coastal stations can provide.

Results from Ringing

It is difficult to present the results of ringing in Sussex over the past 25 years because ringing is merely one specialised way of discovering more about birds: it does not operate in isolation. Rather, it is inextricably entwined with other approaches, so that ringing studies may help to complement or confirm visual evidence, and likewise detailed observation may be necesssary to make sense of ringing results. Because, to a bird, a county is an artificial and meaningless division, it is even harder to disentangle the results of ringing specifically in Sussex from its wider context.

Basically ringing involves the fitting of a small numbered metal ring to a bird identifying it as an individual of a known species. Whether or not that bird is ever found again, some useful information has already been gained. For example, while autumn passage through Sussex is evident from observation alone, ringing totals have provided a much fuller understanding of its timing, composition and scale. Mistnets are most effective at catching small birds skulking in thick cover — precisely those which are difficult to see, identify and count accurately by other means. Indeed, species such as Radde's and Dusky Warblers owe their places on the county list only to having been caught in mistnets, as does Thrush Nightingale, the sole known Sussex example having spent at least a week at Beachy Head in 1984 without once being seen in the field in spite of the many watchers present. Records of most of the other scarcer passerines in Sussex, including Aquatic Warbler, Bluethroat and even Ortolan would be far fewer but for ringing captures. Three Barred Warblers were trapped in a short time at Hodcombe in 1969, and it was considered that, but for ringing, they would have been recorded as one individual. Conversely, some of the harder-to-identify species have proved to be very scarce. Many birdwatchers, myself included, have hopefully wondered whether an autumn warbler with very yellow underparts was a Melodious. However, few field guides illustrate first-year Willow Warblers, which are much brighter and yellower than spring adults. With birds in the hand, the different structure and build makes such self-deception impossible, and B.H.R.S. have ringed only two Melodious Warblers in their history, compared with 20,000 *Phylloscopi*. Identification problems occur even in common and familiar species. Until 1975, the Sussex Bird Report published many records of passage under a combined Willow Warbler/Chiffchaff heading, especially for autumn when song rarely provides a clue. However, ringing records from many sites proved that there was little overlap in the main passage of the two species, either in spring or autumn. Most Willow Warblers arrive later and leave earlier than the double-brooded Chiffchaff; normally their departure peaks in late July and early August. But Chiffchaffs rarely move through until September; at Ashcombe (on the Downs near Lewes) passage begins with remarkable regularity each year on the 3rd of the month, give or take a day or two, and peak numbers occur about the middle of the month when few Willow Warblers are still present.

Even when passage of the commoner species is visible and obvious, its sheer volume can easily be underestimated: netting so often reveals that far more birds are present in a reedbed or in dense scrub than the most careful observation would suggest. Secondly, a count of 50 birds each day at a site for a fortnight might represent a total of anywhere between 50 individuals and 700, but the low percentage of retraps of birds ringed during passage suggests that the higher figure is closer to the truth. Only 4 out of 179 Sedge Warblers ringed at Chichester in autumn 1963 were later retrapped, and rates for other

migrants are often similar. At a small reedbed roost at Southease, large numbers of Swallows were caught in the autumns of 1983 and 1984. Although the size of the roost was fairly constant, it seems that new birds were involved each evening, as retraps were virtually non-existent even when netting took place on consecutive days.

This wealth of small migrants enabled Sussex ringers to play a large part in national studies of Sand Martins and *Acrocephalus* warblers. The Sand Martin Enquiry was begun by the B.T.O. in 1960, with rings for use on this species issued free. A major autumn roost was discovered at Chichester Gravel Pits in 1962, and during the next four years 22,000 Sand Martins were caught — over 10,000 in 1963 alone. Of these, more than 750 had already been ringed at colonies or roosts elsewhere in Britain, and a further 1,000 were later recovered either in Britain or as far abroad as North Africa. A very detailed picture of movements to and from Sussex was built up; but numbers were never so high again. By 1967 there was no longer a regular roost at Chichester, and the decline has continued both nationally and in Sussex ever since: in 1985 no Sand Martins were ringed in the county. Nets set in reedbeds at hirundine roosts also catch *Acrocephalus* warblers, so it was natural that interest soon turned to these. Chichester G. P. proved to be a major south coast stopover site for autumn migrants, and by 1967 4,467 Sedge Warblers and 935 Reed Warblers had been ringed there. Reedbeds at Filsham, Litlington, Church Norton and Steyning have provided additional evidence that Sussex may be a staging post particularly for Sedge Warblers from central Scotland, while nationally the survey revealed the different migration strategies employed by the two related species. Sedge Warblers tend to make one long flight from southern Britain direct to their sub-Saharan wintering grounds, but Reed Warblers travel in gentler stages via Portugal.

Recently interest in warblers of the genus *Sylvia* has grown. They are now among the B.T.O.'s list of target species to be ringed in greater numbers, and a partial refund is given on the cost of rings as an encouragement. Some of the interest in the group stems from the N.C.C.'s concern about the decline in the amount of scrub habitat in Britain as more and more marginal land is cleared for agriculture and housing, hedges become fewer, and farms become tidier and sprays more effective. Additionally, Whitethroats in particular are known to be facing difficulties in their African Winter quarters due to prolonged drought. With the slow but continuous development of farming and industry in Africa, increased population pressure due to medical care, the draining and spraying of marshes in the fight against disease, and the widespread use on the land of persistent chemicals manufactured but long since banned in the West, all our warblers may face increasing problems on their wintering grounds in the future. Information about the exact areas used, and the habitats chosen there, may soon be of great importance if attempts at conservation are to be made. Beachy Head can claim to be the main departure point for British Blackcaps, and probably the other *Sylvia* warblers too. About 50 times as many Blackcaps are recorded at Beachy Head as at Dungeness and Portland Bill combined. In 1965 B.H.R.S. ringed about a quarter of the national totals for Blackcap and Lesser Whitethroat, and although this proportion has since fallen, around one in every ten *Sylvia* warblers ringed in Britain in recent years was ringed in Sussex. Fittingly, there have been some exciting recoveries. In 1962, D. D. Harber ringed the first Garden Warbler to be recovered in Africa — on return passage in Morocco in the spring. In 1965 a Lesser Whitethroat ringed at the Crumbles was another first in Africa, being found in Egypt the same November. Lesser Whitethroats have proved lucky birds for Sussex ringers, with reports coming from Italy, Cyprus, Israel and the Lebanon besides more from Egypt, clearly showing the south-eastwards migration to different wintering grounds than those used by our other warblers. This is useful information: because Lesser Whitethroats in Britain have not declined like related species which winter just south of the Sahara, it suggests that the problems really are in the winter quarters rather than in this country. Another notable first for Britain was a Blackcap ringed at Beachy Head in September 1977 and found in Senegal that November — although we had always assumed that some of our Blackcaps do cross the Sahara, this was the first proof that they did so. Judging by recoveries, wintering in Morocco and Algeria may be more frequent; though reporting rates may simply be higher in these countries. For every recovery of a warbler in Africa, there may be a couple of dozen showing the routes taken through Britain and Europe, and for most species these are now clearly defined. Yet inevitably some problems remain unanswered: many Blackcaps depart from the Sussex coast in Autumn carrying large amounts of pre-migratory fat — birds 50% or more above their usual weight are almost the norm — yet heavy Whitethroats are untypical. Blackcaps

are not thought to make long non-stop flights, but this view may need to be changed if fat deposition is a reliable guide.

Whereas the report of a ringed warbler or hirundine from Africa is exciting and spectacular, we know that these species are migrants and we know, however vaguely, their intended destination. Equally exciting to my mind are the movements of the partial migrants, and in a way these epitomise the value of ringing as a research tool. The Starlings on the lawn are a striking example. In winter the resident Sussex birds are joined by others quite indistinguishable in plumage, behaviour and habitat. These immigrants may be seen arriving at the coast in autumn, and radar studies also show heavy passage from the Low Countries into south-east England. However, only ringing can show that these immigrants originate from as far away as the Balkans, Finland and even Russia, the furthest so far reported being one ringed at Alfriston in early 1972 which was back in Arkhangelsk, 1,700 miles away, in May. Blackbirds are night migrants; I have never seen or heard one migrating in Sussex. Yet I know that perhaps a third of the several hundred Blackbirds which use my downland site at Ashcombe in autumn and winter are foreign immigrants, totally indistinguishable even in the hand from the resident stock. Only recoveries in the breeding season from Belgium, the Netherlands, Germany, Denmark, Sweden and Czechoslovakia (the latter a first for Britain), coupled with retraps of the sedentary local birds, have revealed the pattern. Other familiar species can make complex movements. Robins and Song Thrushes in Sussex may be residents, Summer visitors, Winter visitors or passage migrants, the proportions of each varying in different years according to the coldness of the weather here and over Europe, wind direction in Autumn and the food supply, especially the berry crop in the case of Song Thrush. Robins from Denmark, Sweden and Poland have been found wintering in Sussex, while some of our birds, especially females, winter in France or Spain. Some of our Song Thrushes join Continental birds which pass through Sussex each Autumn to travel south as far as Portugal, and a few of the immigrants winter here – a bird wearing an Estonian ring was another 'first' for Britain at Ashcombe in early 1986.

Other winter visitors have been the subject of a major cooperative ringing effort in Sussex over the past decade. The Gull Study Group, originally based in the London area, held trial sessions in Sussex in 1975. These proved successful, and a regular programme of cannon-netting began, at first on the western beaches and later on rubbish tips. The cost of rings and explosives was met by M.A.F.F., because of their concern about possible disease and hygiene risks from gulls feeding on decaying household refuse at the tips and then roosting on playing fields and reservoirs. Most ringers in Sussex, and some from neighbouring counties, helped with the project at one time or another, often working under pressure in unpleasant weather conditions and unsalubrious surroundings. Several hundred gulls could be taken in a single catch; mostly they were Black-headed, but even the women became adept at handling ferocious adult Greater Black-backs without too much risk of injury. Good numbers of Common Gulls were caught, and recoveries as far as 32 degrees east in Russia suggested that birds of the larger race *heinei* might reach Sussex. A Mediterranean Gull, already ringed in Belgium five years earlier, was a special prize at Hove in 1977, while at Small Dole several yellow-legged Herring Gulls of the Mediterranean race *michahellis* (which may eventually prove to be a distinct species) were of great interest. At one time in the early 1980s about half the Black-headed Gulls ringed in Britain were the product of this team's efforts and, deservedly, the results were excellent. Literally hundreds of recoveries have built up a very detailed picture of the origins of gulls wintering in Sussex and the timing of their movements, with most of the Black-headed Gulls coming from the Baltic and arriving in Sussex as early as July.

Many of the same ringers were involved in the Canada Geese project, an annual and not-too-serious event in early July when flightless birds at Chichester and Petworth Park were rounded up and penned like sheep so that they could be ringed. The aim was to discover whether there was any interchange between the various sub-populations in Sussex of this increasing and potential pest species. Plenty of evidence of movement was found, both within Sussex and between neighbouring counties, with some birds even travelling over 700km to moult on the Beauly Firth in Inverness. Such mobility suggests that the transportation or culling of birds at sites where their numbers are deemed too high would not solve the problem for long. The project was shelved when price increases took the cost of rings to 23.5p per goose, bearing in mind that 200 might be caught in one drive.

Although naturally ringers operate in the hope that their birds will be found in some

faraway place, it can be very useful (if less exciting) to know which species are basically sedentary. Outside the breeding season, many birds form flocks which are conspicuous and easily counted, especially in winter when there is less vegetation to obscure the view. Counting these flocks could be a convenient way to monitor Sussex populations — but only if emigration and immigration are small enough not to matter. Ringing can show the species for which this technique may be valid, and those for which it is unsafe. Many Yellowhammers have been ringed in Sussex over the last 25 years, but all recoveries have been local, unlike Reed Buntings, which have produced inter-county and cross-Channel movements from fewer ringed. Nearly all Goldfinches and most Linnets emigrate, and those wintering in the county may not even be Sussex-bred birds. Greenfinch numbers in Winter are swelled by an influx from counties to the north-east, so our most resident finches are Bullfinch and Chaffinch: although Chaffinches (mainly females) from Sweden, Norway, Denmark, Germany and the Low Countries have been found in Sussex in Winter or on passage, they seem to be in the minority. Even though Great Tits ringed near the coast in Sussex have twice been recovered breeding in Belgium, it is safe to assume that winter tit flocks are basically composed of local birds. Tawny and Little Owls, Kingfisher, Woodpeckers, Dunnock, Wren, Nuthatch, Treecreeper, Magpie and of course House Sparrow are other species where ringing has shown little movement in or out of Sussex. For these and other residents it may be safe to use ringing totals as an index of abundance. They have shown for instance that Willow Tits are as numerous and almost as widely distributed in Sussex as Marsh Tits, if less conspicuous in the field. Annual fluctuations of species vulnerable to severe winters may also be revealed: ringing totals can give a more precise and less subjective picture than observation alone, but must be interpreted with caution as catches are influenced by wind and rain, and by changes in effort. After extremely cold conditions early in 1987, lasting well into March, only 27 Goldcrests were ringed in Sussex in 1986 — just 9% of the previous year's total. Numbers of Long-tailed Tits ringed were down by 48%, but curiously Wrens seemed unaffected by this particular cold spell, and totals were up by over 11%.

Where a species becomes the subject of a special study, obviously this technique cannot be used. Only about a dozen Corn Buntings were ringed annually in Sussex until 1985, when a colour-ringing project was begun by Sussex University, and 463 were handled in the first year. This type of study depends on birds staying around rather than moving, the aim being to recognise them as individuals in the field by their combination of colour-rings without the need to catch them again. Already much new and fascinating material about this previously neglected species has been gained. Previously the University had not been as active in ornithology as some others, though studies on breeding Stonechats and several on Robins have been carried out there.

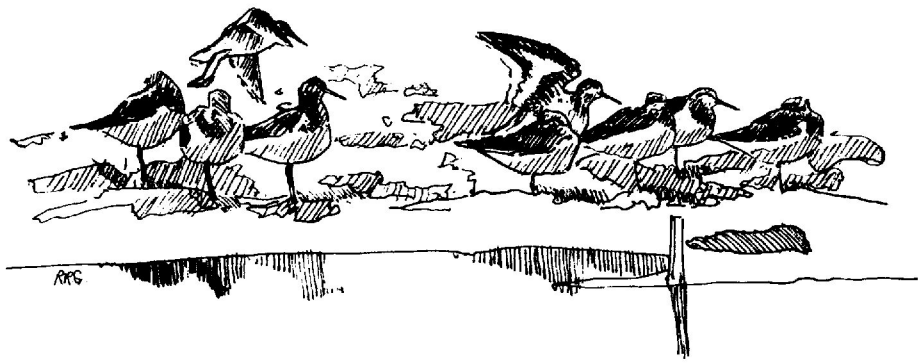
Inevitably, some species and some aspects of ringing have not been covered as well as others in Sussex over the past 25 years. In 1965, the compiler of the county ringing totals noted that few nestlings were being ringed, and that most of those were either tits in nestboxes or the product of P. G. Davis's unparalleled nest-finding skills. This still holds true today. Ringing birds as nestlings enables their exact age and point of origin to be known, and subsequent recoveries or even local retraps of such birds hold a special interest. It gave me great satisfaction last January to handle a fierce male Sparrowhawk in superb condition, which I had first met three years earlier as an egg, and then ringed as a fluffy white chick. Large-scale nestbox schemes, like the one begun at Possingworth Park by Guy Mountford and recently revived, have provided few long-distance movements but a wealth of data on clutch size and breeding success, together with information about lifespan (80% of Blue Tits do not survive their first year) and causes of death. Sometimes these are bizarre, like the cream-stealing Blue Tit which drowned in a milk churn, and another which was killed by a falling peanut holder.

Considering the length of coastline, very few waders are ringed in Sussex. This comment was first made in 1962, when only seven were trapped, and again in 1982, when the total was also seven — four Woodcocks and three Snipe! Although there are some excellent sites for waders in Sussex, these are all in reserves or well-watched areas where ringing might be obtrusive and inappropriate. Similar caution on the part of ringers has so far decided against any large-scale ringing of tern chicks, although simple colour-ringing projects could provide much important information about survival rates and fidelity to colonies which would be useful for conservation, perhaps enabling the average breeding success needed to maintain a colony to be calculated.

Conclusion

In terms of time, effort, skill and expense ringing is a demanding branch of ornithology, but it provides facts which can be obtained in no other way. Yet, however accurate, the information is of no value unless it is used. All recoveries of ringed birds go to swell the data banks of the B.T.O. and Euring computers, and so are available for analysis. The recovery rates of many small passerines are so low that the pattern only makes sense when viewed on a national rather than a local scale. However, ringers are also encouraged to develop their own projects and publish their own results. The record of Sussex ringers in this over the last 25 years may be described as fair. Virtually all have cooperated by forwarding their annual totals and interesting recoveries, so that selected highlights may be published each year in the Sussex Bird Report. Others have written papers or newsletter articles based on ringing, or given talks and lectures to interested groups. Not to be undervalued are the unpublished reports produced for landowners, farmers and Councils, making them aware of the importance of their land for birds, and hopefully preventing detrimental land-use or management changes. Nevertheless, much potentially valuable data collected with great effort must still be lying unused in ringers' logbooks. The emphasis in the future seems likely to be on more analysis by ringers themselves, perhaps using personal computers, and an increase in special projects whereby ringing is used as a tool to investigate aspects of a chosen species' biology. Even so, general or opportunist ringing will always have its place: very often an unexpected or lucky recovery results from this, and sparks off the idea for a special project.

Finally, over the past 25 years many of the important recoveries already mentioned came to light only because birdwatchers and members of the general public were good enough to report the rings they found on dead birds; other finds not yet mentioned included a Blackcap ringed in Norway which tried to winter at Steyning in 1982, a Peregrine also with a Norwegian ring found entangled in a bramble bush in 1983, and a Sparrowhawk ringed in Sweden and picked up at Birdham in 1984. But all recoveries are of interest to the ringer concerned, and we are grateful that so many people take the trouble to get the information to us.



SCARCE MIGRANTS IN SUSSEX 1961-1985

Richard J. Fairbank

Introduction

This paper considers the pattern of occurrence of scarce migrants in Sussex during the last twenty-five years. All records of scarce species in this period can be found in the Sussex Bird Reports for the years 1961-1985.

What are scarce migrants? Most occur irregularly on Spring or, more usually, autumn passage in Sussex, often along the coast. I will loosely define a scarce species as one which is not seen in Sussex every year but should have been recorded, on average, in at least one year in three (or in at least eight of the last twenty-five). Few species thus considered are now national rarities, though several have been. In 1962 records of Bearded Tits outside East Anglia were considered nationally, in that year twelve of the seventeen published by British Birds (56:403) were in Sussex — all in the Pagham Harbour area. Bearded Tits now border the scarce/regular categories and are not considered here.

Some wintering species are included, for example Glaucous Gull and Great Grey Shrike but most are not, especially wildfowl for which escapes often confuse the true status of a species. This paper does not claim to be exhaustive, there are several species with valid criteria for inclusion which have not been incorporated into this analysis, the species chosen are a personal selection.

Included in this paper are a few species recorded in fewer than eight of the last twenty-five years, some would never be considered scarce nationally but are actually very rare in Sussex. The Dipper is an extreme case with only seven Sussex records, the last being seen on the River Dudwell in December 1962. Thus in the period 1961-85 Dipper has been as rare as, for example, Wallcreeper, while the Raven with three records, has been as frequent in Sussex as Stilt Sandpiper. Also included are several species which have been recorded in Sussex every year, some, perhaps, do not justify the scarce label but are sufficiently interesting to liven a dull day.

The Tables

Table I shows the occurrence of thirty-five Non-Passerine species in five-year periods in an attempt to show any changes in the number of records over time. Also shown, where known, are the number of Sussex records prior to 1961, and the number of years between then and 1985 when the species has been recorded.

Table II shows the same information for twenty-three Passerine species and includes the average number of contributors to the Sussex Bird Report for each five-year period. Instead of a steady increase in contributors as one might expect, the great increase in the Sixties drops off and declines slightly in the Seventies before increasing again in the Eighties. This may not reflect the true level of observer/hours in the field but is the best measure available.

Table III shows the areas of Sussex (split into five regions) where ten selected scarce species have been recorded. These species typify the scarce migrant with most records on coastal headlands in Autumn. The predominance of records around Beachy Head is clearly shown, highlighting its position jutting out into the Channel. Selsey Bill does not protrude so far, is somewhat in the shadow of the Isle of Wight and may be too far west for some of the "eastern" migrants, though all are regular on the Isles of Scilly.

Table IV shows the date of first sighting of the above ten selected species in ten (or eleven) day periods. It is of note how spread out Autumn migration can be, from early August to mid November, and how peak passage patterns vary between species (see also Figure one, below). This should be sufficient incentive to keep observers looking all through the Autumn!

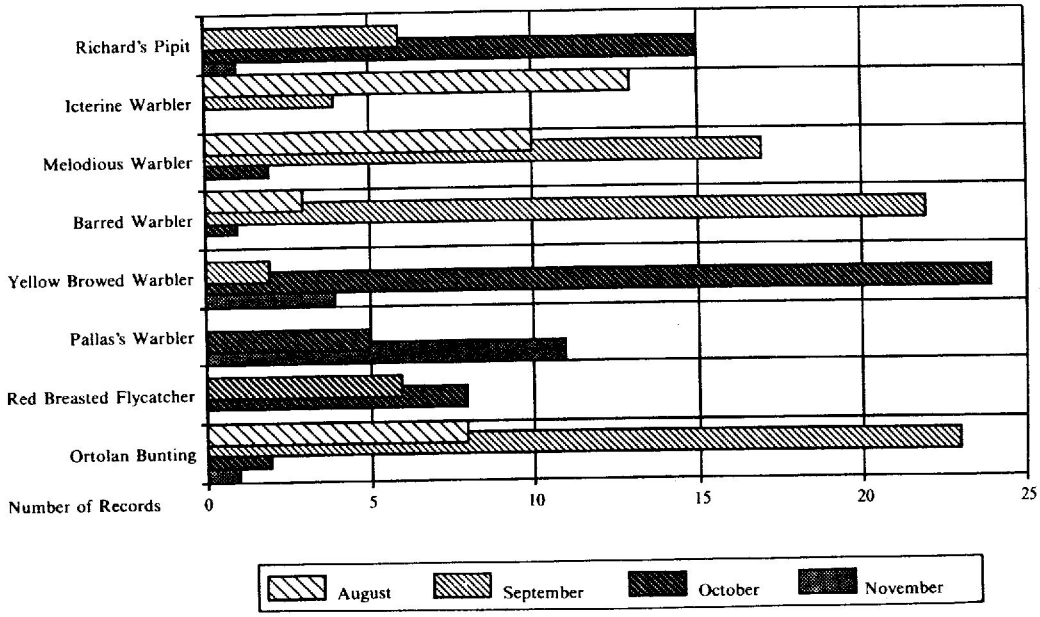


FIGURE ONE: Selected Autumn arrival dates

Status Changes

Before discussing the individual species listed in the tables, the following are some general factors which may affect the numbers of individual species recorded each year. These fall into two categories; factors affecting true status changes in a species and factors affecting changes in the proportion of birds recorded to those actually present.

Some factors affecting true changes in status for scarce migrants are:

a) population changes — if the population of a given species increases or decreases then more or less might be expected on passage, for example Osprey or Corncrake.

b) long term meteorological changes — the appearance of scarce migrants is usually weather dependent so a run of years with unfavourable conditions will reduce the number of a species occurring.

c) habitat changes — creation of reservoirs/draining of wetlands (e.g. if water levels at Pett Pools were not controlled the pools would not be suitable for passage waders which would then have to go elsewhere to feed and not necessarily in Sussex).

Factors affecting the numbers of a species found, without affecting the species true status, include:

a) coverage — the number of observers in the county, how long is spent in the field, how many different areas are looked at, etc. This has been considered by counting the contributors in the Sussex Bird Reports (see Table II) but is not entirely satisfactory. 105 observers at Pagham for one day will almost certainly see less collectively than fifteen there all week and certainly less than five all week at each of Pagham, Beachy Head and Rye. Each gives 105 observer/days in the field and the first considerably more potential Bird Report contributors.

b) observer awareness — probably not very relevant to the species considered here, but while Sussex has always been fortunate to have some very competent observers, it is the standard of the majority which could be significant. Would proportionately fewer observers overlook a Mediterranean Gull now as would have done twenty years ago?

c) amount of ringing — the decline of ringing in Sussex, particularly at Beachy Head, may affect the number of records of species for which a large percentage of records are trapped, for example Barred Warbler. Most records of Aquatic Warbler relate to birds trapped in select reedbeds where trapping is not constant year to year.

d) habitat changes — may affect the number of birds recorded without changing the number present. The available cover for warblers at Beachy Head has increased

considerably during the last twenty-five years making birds there potentially harder to find with far more cover to conceal them. The building developments at Selsey Bill may not have affected the birds present but a number may now be unviewable in the many back gardens there. Less suitable habitat may not encourage migrants to linger, decreasing the likelihood of their being noted.

e) recording changes — changes in the membership of the Sussex records panel over the years may have an effect on the acceptance criteria for scarce species. A record which was acceptable to one panel might have been rejected if submitted to another. As changes to the records panel have been gradual, usually one member at a time, it is hoped that the standard of acceptance has remained fairly constant. Another factor may be the number of individuals at any given time who refuse to submit records.

Factors affecting the general number of records compared with a species true status are the viewability of a species and how obvious it is. A White Stork or Osprey at Pagham Harbour would be unlikely to go unnoticed while an Aquatic Warbler or Mediterranean Gull probably would. The White Stork is much more likely to be seen, and once seen identified correctly. Even if seen an Aquatic Warbler may then be dismissed as a Sedge Warbler. While none of the species here pose particular identification problems, several may easily be overlooked.

The longer a bird stays, the more likely it is to be found. Most waders stay in one area for several days, especially in Autumn, while most birds of prey just fly over an area and so are more easily missed. Species stopping on the coast are much more likely to be found than those on the downs or inland (away from reservoirs). Many birds must go unnoticed once they have crossed the coast and Dotterel feeding unobtrusively on downland can be very hard to locate, even in traditional sites. A tern passing steadily along the coast is more likely to go unnoticed than one on a reservoir for two weeks.

The above are all factors to consider when interpreting the information in the Tables, most of those species will now be considered in more detail.

Species Accounts

Sooty Shearwater has been recorded in Sussex in eighteen of the last twenty-five years, totalling forty-two individuals; this contrasts with only four records prior to 1961, all have been coastal. There has however been little evidence of any true increase since the mid Sixties despite the great increase in "seawatching" in recent years. Records in our period fall between July 14th and December 19th (a very late date) with all but four in August, September (with nearly half the records) or October. Seawatching is mainly a Spring pursuit and with all Sooties recorded in Autumn it is perhaps not surprising that the number of records has not increased dramatically as for example with Pomarine Skua.

Storm Petrel is now very rare in Sussex, only six were recorded in our period compared with nineteen between 1946 and 1960. November was the favoured month for records prior to 1961, however of those seen since three were between October 15th-17th, with singles on September 4th, October 29th and November 30th.

Leach's Petrel has also been found six times in the last twenty-five years, two were in September, three between October 19th-22nd and one in late December. One was at Bewl Water (September 23rd, 1982), not as unusual as it may seem as the species is recorded almost annually on the large London reservoirs in Autumn. The Seventies produced just one petrel record (a Storm at Selsey Bill in October 1976) and there were no Leach's at all between 1966 and 1982. The peak time for petrels in Sussex now seems to be mid-October with half the recent records. Sussex must be one of the worst coastal counties for unusual seabirds, being too far up Channel for most gale blown species and on the wrong side of the Channel to pick up southward movements out of the North Sea in Autumn.

Little Egrets have slowly increased and there are records for each of the last five years. May has produced ten (71%), with singles in April and June and two in July. Six have been seen on more than one date. With the exception of one at Weir Wood Reservoir on May 8th-9th, 1982, all have been coastal, including four seen in Chichester Harbour, five at Pagham Harbour and four in the Cuckmere.

Records of **Purple Heron** have steadily increased during the period with annual occurrences from 1977 to 1984. Twelve (63%) were in Spring, with three in April, five in May and four in June. There are two records for both July and August and singles in September, October and November. Most records were of birds present on only one date, three were seen twice, but only one of those was present on consecutive days, in the Cuckmere on May 5th-6th, 1978.

The high **White Stork** totals in the Seventies were helped by a record five together at Polegate on April 25th, 1972 and only two years when none were reported. All but two records were between April 6th and September 19th with one at Adversane from mid September 1974 to mid February 1975 and one over Goring on December 31st, 1978. Monthly totals are ten in April, five in May, five in June, three in July, one in August, two in September and one in December, most White Storks overshooting in early Spring. There were twenty-seven seen prior to 1929, but none then until 1965. Although White Storks are amongst the most obvious and easily recognisable of species they are probably under recorded as most coastal records relate to flyovers and inland records on farmland are not infrequent.

Spoonbill totals have remained fairly constant since the mid Sixties, an exceptional flock of twenty flying south-west off Langney Point on September 1st, 1964 form most of the 1961-65 total. Without flocks of five in the Cuckmere in May 1979, four at Pagham that September and five there on April 12th, 1983, a recent decline might be evident.

Honey Buzzard records show a peak in the late Sixties and early Seventies which may be significant. A lot of time was spent scanning skywards for raptors on sunny Autumn days at Beachy Head then which may account for the increase. All records were between May 9th and November 1st, with four times as many in September as in any other month. Birds of prey are easily missed, especially in Spring once they have crossed the coast and are probably greatly under recorded.

The increase in **Red Kite** records would seem to be greater than one might expect from more observers and may reflect a rise in the population on the Continent. It is unlikely that many, if any, birds seen in Sussex originate from mid-Wales (where numbers have fluctuated around thirty breeding pairs for the last ten years). Winter records predominate and 1985 was the first blank year since 1969. Five birds were recorded in 1979, the best year in our period, but sadly two had been poisoned and were found dead.

Montagu's Harrier has declined as a breeding species in Britain, though a slight increase has been noted in the early Eighties with eight to ten breeding pairs; it has only bred once in Sussex since 1938. Only the eight recorded in 1980 slightly reverses the downward trend; the two blank years in our period being 1979 and 1983. May and August are the favoured months for passage birds.

Numbers of **Goshawks** in Sussex have fluctuated during the last twenty-five years but the species is often unobtrusive and not easy to identify, let alone convince a records panel, so records are probably understated. The increase in British breeding birds from twenty-one possible pairs in 1974 to sixty-eight in 1984 is yet to be reflected by any increase in Sussex records. A small number bred in the county up to 1951. Three were seen in 1963 and five in 1975, the best years in our period. Most have been seen in Autumn or Winter.

The **Rough-legged Buzzard** is usually a very scarce Winter visitor to Sussex with a few notable influxes boosting the totals. In late Autumn 1966 up to eleven were found, several remaining into 1967. A similar influx brought ten into the county in late Autumn 1973 but was eclipsed by about forty the following Autumn, including fifteen arriving from the sea at Beachy Head on October 22nd, 1974. Eight were seen in the Winter of 1975/76 but there have been just nine recorded since, another influx would seem long overdue.

The steady increase in **Osprey** records probably reflects both larger numbers of observers and a growing population, though how many of those recorded in Sussex relate to Scottish birds is unknown. Ten successful pairs in Scotland in 1974 had increased to

twenty in the early Eighties. Ospreys were recorded in every year of our period, though only one was seen in 1967, the last blank year was 1948. Sixteen were seen in 1982 and fourteen in 1971. Over two-thirds of all records are in Autumn, most in September, while most Spring records are in May. Long stays on inland reservoirs in Autumn are not unusual.

Spotted Crakes were most numerous in the early Seventies with five records in 1971. The last ten years have produced just eight records, five in September and one each in October, November and December.

Records of **Corncrake** have continued to decline, as one might expect. 1967 was the first blank year for Corncrake (they still bred in Sussex as recently as 1945) but was then followed with eight in 1968 and ten in 1969, the two best years in our period. The last ten years have averaged just one a year; how long before it becomes a rarity? Most records are in Autumn, with September the favoured month for return passage sightings.

Regularly breeding in Sussex up to 1920 and again between 1949 and 1956, the slight rise in records of **Kentish Plovers** may reflect an increase in observers rather than any change in population. A pair breeding in Lincolnshire in 1979 might give faint cause for optimism, though the nine seen in Sussex in 1980 matches the total number of records for the following five years.

Dotterel records show an increase during the Seventies, being recorded every year from 1973 to 1982. Two blank years were then followed by nineteen in 1985, the highest total this century, and probably even more in 1986. Ten at Balsdean and eight at Beachy Head in late August/early September 1985 were the largest trips recorded since eleven on Iford Hill from May 19th-22nd, 1971.

Totals for **Temminck's Stint** have slowly increased during our period, an extraordinary flock of seven on Sidlesham Ferry on May 7th, 1981 helping that year to a record twelve. Most records are in May, August and September, though one wintered in Thorney Deeps in 1975/76.

Pectoral Sandpiper records have also increased during our period. Controlling the water level at Pett Pools has been beneficial to this species with three present there between September 9th-14th, 1982 and four others since 1975. Only two of all thirty-six Pectoral Sandpipers recorded in Sussex have been in Spring, both at Cuckmere Haven, on May 14th, 1977 and May 18th, 1980. Most records are in September.

The **Red-necked Phalarope** has remained a very scarce species in Sussex throughout the period with only fourteen recorded in twenty-five years. Of fifty-three recorded before 1961 only four were in Spring (8%) while since then four have been between May 25th and June 12th (29%), two in July, seven in late August/September and one in late October 1976. All were coastal with the exception of one in a ditch on Amberley Wildbrooks on June 12th-13th, 1965. The most recent were the two recorded in 1981.

Most **Grey Phalaropes** are recorded in late Autumn, numbers have fluctuated throughout the period, often dependent on Atlantic weather conditions, with sixteen seen in 1972, twenty-nine in 1981 and twelve in 1984, but only two in the four years 1975-78. The 1981 influx was the largest since 1960 when sixty were recorded in Sussex. All the 1981 individuals were recorded between September 22nd and October 11th, though over two hundred off the Isles of Scilly on September 23rd puts the Sussex total into perspective.

The steady climb in **Pomarine Skuas** records in Sussex is probably due to increased observation along the coast in Spring (nearly all Pomarine Skua records are for May, with a few seen in Autumn), the growth of "seawatching" since the mid-Seventies is clearly reflected. The number of Pomarine Skuas seen off the Sussex coast is dependent on weather conditions at the mouth of the Channel (preferably westerlies to push the birds into the Channel and prevent them passing north round the Western Isles). Once in the Channel a south-easterly wind will ensure they pass along the English coast rather than the French one. Such movements are often predictable and any early/mid May day when the wind

swings round to the south-east after a period of westerlies is worth a look. Such conditions on May 7th, 1981 (obviously a good migration day *cf.* Temminck's Stint) brought 82 flying east past Hove seafront and 102 past Beachy Head (the day's total for Sussex was at least 126). Similar weather on the afternoon of May 14th, 1984 caught most observers unaware, but 109 'Poms' passed Brighton Marina. Now the pre-1961 total of just forty-one seems very small.

Throughout the period **Long-tailed Skua** has remained very rare, with an increase in seawatching only producing records of this species in the Eighties. The four records since 1961 are of singles at Selsey Bill on October 15th, 1963, Widewater on September 11th, 1981, Brighton Marina on May 16th, 1984 and Selsey Bill on May 8th, 1985. Thirteen were recorded prior to our period, the most recent of those in 1942. It is of note that Pomarines outnumbered Long-tailed Skuas by only three to one before the Sixties, the ratio in our period is over three hundred to one.

It has only been during the Eighties that there has been any real increase in the number of **Mediterranean Gulls** recorded in Sussex, with sixty-six in 1983 and sixty-eight in 1984, the average for the last five years is just under fifty a year (*cf.* ten a year from 1961-75). This would seem to be in line with the number recorded in Britain generally and probably reflects a population increase as much as anything.

Sabine's Gull has remained rare throughout the period, with only two recorded between 1972 and 1982. The only year in which more than one was recorded was 1970, with singles on September 13th off Selsey Bill, Langney Point and in Newhaven Harbour, the latter remaining until the 18th, though even these records may not relate to different individuals. The vast majority of British sightings are in Autumn (as are seven of the ten recent Sussex ones), while Spring records are very rare and those in Winter have recently been criticised by American, Swedish and British authorities (*British Birds* 76: 91, 77: 122 and 80: 75-77). In this context unseasonal fly-past records in Sussex stand out and perhaps need reviewing. All observers are reminded of the real dangers posed by distant first-year Kittiwakes. All birds have been fly-pasts with the exception of the Newhaven Harbour bird, one in Pagham Harbour on December 27th, 1971 and one in Brighton Marina on September 28th, 1984, our most recent record. Prior to 1961 there were fifteen Sussex records.

The pattern of occurrence of **Iceland Gull** and **Glaucous Gull** are interesting, but hard to explain, with a very lean period in the late Seventies and record numbers in the Eighties. Only two Iceland Gulls were recorded between 1969 and 1981, both in 1972, yet there were seven in 1984 and five in 1985. Glaucous Gull has been recorded in every year since 1966, but both 1978 and 1980 only managed a single record compared with twenty-five in 1984 and thirteen in 1985. 1963, which boasts the coldest Winter during our period, is surprisingly the only year with neither of these northern gulls recorded. Before 1961 records of Glaucous outnumbered Iceland by two to one (50 Glaucous to 26 Iceland), in our period the ratio has increased to five to one (135 to 26).

Gull-billed Tern records have crashed since the early Sixties when they were regularly reported from Selsey Bill. Despite the great increase in "seawatching" this species has only been recorded in four years since 1968, though this does include an exceptional flock of seven flying east past Beachy Head on May 13th, 1983, perhaps reflecting the decline in the Baltic breeding population.

Records of **Caspian Terns** have declined since the early Seventies, with nine records in the years 1961 to 1971, there have been just three since. July has provided half the records while there have been two each in May and September and one in both April and June. All were coastal, with the exception of one at Chichester Gravel Pits between July 11th-31st, 1966. The only other to stay more than one day was the most recent record, at Rye Harbour on July 9th-10th, 1984.

White-winged Black Tern shows no clear pattern, though an increase in the number of records in the Seventies is apparent. In nine of the eleven years for which there are records more than one bird has been seen, though not together. There were twelve prior to 1961, four in 1977 and three in 1984. May and August/September are favoured.

Black Guillemot was not recorded in Sussex between 1970 and 1981; four sightings at Selsey Bill in Autumn 1961 were exceptional, though probably related to only two individuals, with just five earlier records and four since. Most have been seen in Autumn or Winter.

Only nine **Little Auks** were seen during the years 1969 to 1978 with twenty-five in the eight years before and also twenty-five in the seven years since. Most were seen buzzing along the coast in early November with a few wrecked inland.

Alpine Swift is the most regular national rarity occurring in Sussex. Twenty have been recorded in the last twenty-five years, including annual sightings between 1978 and 1984. In Spring birds have been recorded between April 9th and June 8th with two-thirds being in May, while Autumn records fall between August 3rd and October 30th with half in August. Up to 1979, only four of the first thirteen Alpine Swifts seen in Sussex were in Spring (and include one of the two records prior to 1961); all nine recorded since 1979 have been in May or June. All records relate to one day sightings and nine have been found at Beachy Head.

The **Hoopoe** is a traditional Spring overshoot species which Sussex is ideally situated to receive. Being spectacular and often having a preference for well kept garden lawns, many of those seen away from the coast are not reported by active observers, thus an increase in the number of observers may not have such an effect on Hoopoe records as might be expected. Certainly the Eighties have produced the fewest Hoopoe records in our period with only one recorded in 1982 an all time low (*cf.* 32 in 1968). Are Hoopoes continuing to decline on the Continent or are we suffering a period of poor Springs? Three of the twenty-five recorded in the last five years have been in Autumn (12%), compared with thirteen of the sixty-nine between 1966 and 1970 (19%). April remains the favoured time for Spring overshoots.

Since its demise as a breeding species in Sussex in 1944 the **Wryneck** has occurred in very small numbers in Spring. Thirty-eight have been seen in the Springs of our period, just over three every two years, with three records in each of 1965, 1970, 1983 and 1985. Autumn occurrences are more dependent on weather conditions to drift them across from the Continent. The recent decline in Autumn records, due to unsuitable weather conditions, was reversed in 1986, but to nowhere near the scale of the movement in 1970 when forty-one were recorded between August 24th and October 14th (including thirty-four at Beachy Head) or 1976 with fifty-six between August 21st and October 24th (including forty at Beachy Head).

Shore Lark have become very scarce during the last ten years with only six seen since 1975, making the nine recorded in 1970 and twenty-three in 1972 appear huge totals. In 1972 up to eleven were at Beachy Head in mid October, with four at Sidlesham Ferry in late November and six in the Cuckmere in December.

With the exception of the late Sixties, **Richard's Pipits** have been scarce throughout our period. There are five records for each of 1967, 1968 and 1970. With the exception of one at Beachy Head on March 26th, 1974, all were recorded between September 22nd and November 3rd. In 1967 four were found together on Pevensey Levels in late October. Also in Autumn six have been at Beachy Head, six between Bexhill and Rye, one at Falmer, one at Climping and four between East Head and Sidlesham Ferry. Confusion can arise between this species and immatures of the next. As Table IV shows Richard's Pipit is usually a later migrant in Britain, it prefers long or rough grass, whereas Tawny Pipit prefers stubble or short cut grass. Richard's is slightly larger, browner, more heavily

streaked, with less distinct median coverts, a plainer face, more prominent moustacial stripe and a more upright stance. It is more likely to be confused with a Sky Lark while Tawny Pipit may resemble a young Yellow Wagtail. Both species have distinctive calls, though others overlap. Note: Blyth's Pipit is on the British List on the strength of an October 1882 Sussex specimen. It may recur, but as it looks like an intermediate between a Richard's and an Autumn Tawny I doubt if I'll find it!

Sussex boasts more **Tawny Pipit** records than any other British county, with an average of six a year since the mid Sixties, and 1962 the only blank year in our period. Four of the 133 recorded between 1961 an 1985 were in Spring, between April 29th and May 24th, and include the only 1978 record. Autumn records fall between August 6th (at Arlington in 1973) and October 28th, although most are between August 24th and October 5th. Two together have been seen on twelve occasions, with three recorded three times (twice at Beachy Head and once at Castle Hill) and four twice (at Beachy Head from October 7th-10th, 1973 and on September 24th, 1983). The largest movement was on September 21st, 1980 when one was seen on Littlehampton Golf Course, two at Cissbury and six at Beachy Head (five together and a single). Surprisingly few have been seen in the west of the county (see Table III), with as many records in the Brighton area (eight) as on the whole Selsey Peninsula. Several have been seen on the Downs with one as far inland as Darwell Reservoir on October 6th, 1965.

The **Waxwing** numbers in Table II are distorted by two Winter invasions occurring across the five-year periods. Autumn 1965 saw a large irruption of Waxwings into Sussex, with at least three hundred being seen, just under one hundred remaining into 1966. Eighty at Pett Level in late November/early December 1965 and *c*130 at Groombridge, on the Kent border near Tunbridge Wells from December 10th-26th were the largest flocks recorded. A smaller invasion involving no more than one hundred birds occurred during the Winter of 1970/71, mainly in the Horsham/Three Bridges/Crawley area. Since a flock of ten at Rushlake Green on October 1st, 1976, Waxwings have averaged just under one record a year and another invasion by this superb species would be most welcome.

Bluethroats have been very scarce since the early Seventies with only twelve birds seen since 1973, contrasting strongly with the numbers seen in the late Sixties. Fourteen were recorded in 1969 including six at Beachy Head on September 20th. Only eight of the seventy recorded in the last twenty-five years have been in Spring (11%), but these include four of the last eleven sightings (36%) making the reduction in Autumn records even more extreme. With the exception of one at Bexhill on October 28th, 1969 and one at Selsey Bill on November 2nd-3rd, 1968, all Autumn records fell between August 24th and October 16th, with thirty-six between September 6th and 21st. The last to be seen on more than one day was as long ago as 1971; at Sidlesham Ferry from October 2nd-7th.

Ring Ouzel numbers have been very variable, with a low of twenty-eight in 1982 and a high of over 320 in 1966. Large Autumn flocks have been noted at Beachy Head with *c*150 there on October 2nd, 1965, *c*200 on October 9th, 1966 and *c*130 on October 25th, 1976.

Aquatic Warbler records, more than any other species, depend on ringing in favoured reedbeds. This has been variable during our period, with no clear trends emerging. 1975 brought ten to the county, with six in 1984, but the species has only been reported in four of the last ten years.

The first Sussex record of **Icterine Warbler** was at Beachy Head on September 5th, 1965. Spring records followed in 1967 and 1968, the remaining sixteen records since 1970, all being in Autumn, have been fairly regular averaging just under one a year. Autumn records fall between August 11th and September 14th with one exception, on September 28th. Eleven have been found between August 19th-27th with five of those on 23rd or 24th. Most have been recorded in the east of the county, as would be expected from a species with an East European breeding range. Beachy Head has had the lion's share of records with twelve in Autumn and one in Spring (68%). Only one was recorded away from the coast, at Woods Mill on August 21st, 1983.

Melodious Warbler was first recorded in Sussex at the Crumbles on September 25th, 1957; one at Beachy Head in 1958 is the only other record prior to our period and both these are included in Tables III and IV. From South Western Europe, the Melodious Warbler has a much more even distribution across Sussex than Icterine Warbler, with similar numbers recorded in the east and west of the county (see Figure Two below). Spring records come from Beachy Head (2) and Winchelsea while Autumn records are from Selsey/Church Norton (14) or Beachy Head (13) with two on the Crumbles. The arrival dates of Autumn Melodious Warblers are more spread out but generally later than for Icterine Warbler with only one-third in August (*cf.* just over three-quarters of Autumn Icterines in August). The 3rd and 25th September are the only dates with more than one Melodious arrival. Melodious Warblers have been recorded most frequently in the early Sixties and Eighties. Observers unfamiliar with Melodious Warbler should be aware of the pitfalls posed by juvenile Reed Warblers in Autumn when they are often to be found skulking in bushes on the coast. Melodious invariably shows green and yellow plumage tones, no discernible supercillium (giving a blank faced expression) and short undertail coverts. The square ended tail is also a good feature but beware of Reeds with central feathers moulting. Several records submitted go to great lengths to eliminate Icterine Warbler without convincing one that they have eliminated Reed.

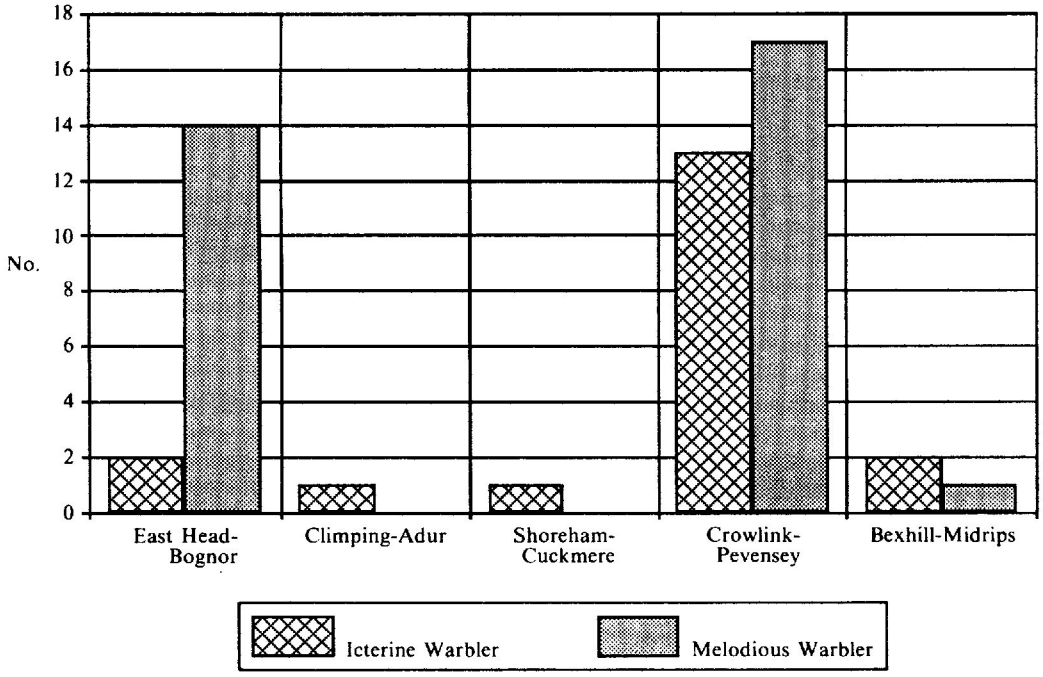


FIGURE TWO: Distribution of records of Icterine and Melodious Warblers

The **Barred Warbler** was first recorded in Sussex in Autumn 1959 when two were seen, the first at Shoreham on August 31st. All subsequent records have been in our period and all have been between August 24th and October 9th, with most in September. The distribution of records is similar to that for Icterine Warbler with twenty out of twenty-six at Beachy Head (77%). Of the six recorded at Beachy Head in 1961-70 five were trapped, but only one of the eight there in 1971-75 and three of the six in 1976-85 have been. The 4th and 13th September have each produced records in four different years.

All records of my favourite scarce migrant, the delightful **Yellow-browed Warbler** have been during our period, with the first, at Selsey Bill on September 17th, 1961, also being the earliest Autumn record to date. Most have been in October with seventeen between 10th-20th. One was seen at Beachy Head on November 30th, 1968, a late date, while in 1975 one lived on Thorney Island from January 10th to April 26th and another was at West Dean, Friston Forest between March 28th and April 20th. One at Church Norton on April 12th, 1971 was probably the only true Spring migrant. As with most species with an easterly distribution, Beachy Head has recorded most individuals, nineteen out of thirty in Autumn (63%), but a pleasing number have been seen elsewhere along the coast.

Although superficially similar in size and appearance to Yellow Browed, **Pallas's Warbler** has even more to recommend it, a prominent yellow crown stripe and rump patch and it is a national rarity. First recorded in Sussex in 1968, when there were three at Beachy Head in the second half of October, there were twelve up to 1983 with another four awaiting acceptance for 1986. Strangely the first five recorded in Sussex were in October (1968-74) while all subsequent records have been in November (1974-86). Twelve out of sixteen have been at Beachy Head (at 75% a slightly higher proportion than for Yellow-browed Warbler). Eleven have been seen on more than one day.

The **Firecrest** is the smallest, if not brightest and most active, migrant regularly seen in Sussex. First recorded breeding in 1973, two pairs were located in 1981, extensive fieldwork in 1982 found eleven, but only one was reported in 1983 and none since. Most are recorded along the coast, sometimes in gardens, in March/April and October/November. The last five years have provided interesting variations in the numbers recorded in these periods. The five-year March/April totals are 51, 26, 62, 47 and 15, while the equivalent October/November figures are 8, 77, 33, 97 and 15. Thus in 1981 Spring birds outnumbered those in Autumn by six to one, the following year this was reversed to one to three.

The first Sussex **Red-breasted Flycatcher** was, surprisingly, at Handcross on April 29th, 1948, unusual in that it is not only the sole inland record but also the only Spring one. All fourteen subsequent records have been in our period, falling between September 4th and October 27th (with one at Church Norton on November 2nd, 1986 awaiting publication). Half have been between September 22nd and October 8th. Beachy Head has recorded eight showing the expected easterly bias, though note the similarity in numbers and distribution between this species and Pallas's Warbler shown in Table III. Only two birds have stayed more than one day making this a particularly difficult species to catch up with if you are not fortunate enough to be at the right place on the day.

The **Golden Oriole** is primarily a Spring overshoot species which potentially could breed in the county; there have been inland Summer records in 1984 and 1985. Records seem to be on the increase, helped by twelve in 1984, the highest ever annual total for this species in Sussex. In Spring and Summer Golden Orioles are usually first located by their liquid song and can often be frustratingly hard to see, despite the male's bright colours. This is generally a later migrant than the Hoopoe with most records coming in May.

Red-backed Shrikes have declined dramatically as a breeding species in Britain with only ten pairs in 1984, so one might expect the number of records of passage birds in Sussex to have declined accordingly (single pairs in Sussex in 1964 and 1968 were the last breeding records in the county). Any such decline does not appear to be the case although the twenty-five recorded in 1977 was exceptional and the last four years have only produced ten records in total.

In the early Seventies **Great Grey Shrike** was a regular if somewhat elusive Winter visitor with a peak of twenty or twenty-one records in each of the years 1974-76. The recent decline has been dramatic, and not confined to Sussex; the last four years have produced just seven records with 1985 the only blank year to date. It is interesting to note that records in the early Sixties number almost as few as the Eighties suggesting large population fluctuations on the Continent. Great Grey Shrikes are often faithful to their Winter quarters and the same bird may return to winter in the same area for several successive years.

Woodchat Shrike has remained a national rarity throughout our period, though with eleven records it is the second commonest passerine rarity in our period after Pallas's Warbler. Five have been in Spring (May 26th to June 20th), one staying for two months at St. Leonards in 1982, and six in Autumn (August 22nd, September 11th-25th and four in October, one remaining to November 2nd). Of the seventeen recorded before 1961 it is interesting that thirteen were in Spring (eight in May) and only four in Autumn. Are Woodchats truly more common now in Autumn or, as seems more likely, were Autumn immatures overlooked in the past? Selsey has two records, with one at Sidlesham, one near Chichester and one even further inland at Graffham. Beachy Head has had three records with one at nearby Crowlink and one at Hove, a pattern not dissimilar to that of Melodious Warbler, with a similar breeding range.

There was a considerable increase in **Serin** records in the early Seventies and since then records have averaged between four and five a year. 1972 has been by far the best year with twelve recorded, including a summering individual in East Dean. This species has the frustrating habit of flying over coastal localities calling without landing. Many such fleeting glimpses by experienced observers are not thought worth submitting and so the true total is probably a considerable underestimate.

Lapland Bunting numbers have fluctuated during the period, most records being in late Autumn or early Winter. In cold Winters when the East Coast freezes birds can often be found in Sussex. The largest flock recorded during our period was eight at Beachy Head on November 3rd, 1968. As I write this (January 1987) a flock of thirty is present on Pevensey Levels, while forty were at Beachy Head from late October to early December 1956. The four years 1973-76 produced just one record between them.

Of the thirty-six **Ortolan Buntings** recorded during our period only two have been in Spring, both at Beachy Head, on May 3rd, 1969 and May 6th, 1983. Most Autumn records fall between August 25th and September 18th (seventeen of these twenty-six were at Beachy Head). 77% of all records in our period are from Beachy Head, with just one at Selsey and two at Sidlesham Ferry. The easterly bias is probably reinforced by the species favouring stubble fields which abound at Beachy Head. The most recorded in any year was five in 1961, all at Seaford Head, and including a flock of four on September 17th.

The next twenty-five years

Doubtless many status changes will occur to "scarce species" in the next twenty-five years. Some considered here will probably become much more commonplace so as not to warrant special attention (Mediterranean Gull perhaps), while others may become very much rarer (e.g. Corncrake). Records of some existing rarities may increase to allow inclusion in a similar paper in twenty-five years time (Ring Billed Gull, with three Sussex records in the last two years, might be a safe guess) while others that are fairly regular now may be less so in future (Snow Bunting perhaps). Species such as Stone Curlew and, more particularly, Cirl Bunting may never make a scarce bird list, having been lost as breeding birds in Sussex in the Seventies, they have crashed straight into the rarity category.

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TABLE I: Non-Passerine Records in Five Year Periods (Number of individuals)

	Prior to 1961	1961-65	1966-70	1971-75	1976-80	1981-85	1961-85 Total	Years recorded
Sooty Shearwater	4	5	10	9	6	12	42	18
Storm Petrel	?	0	2	0	2	2	6	5
Leach's Petrel	74	3	1	0	0	2	6	5
Purple Heron	11	1	2	4	5	7	19	14
Little Egret	5	1	4	0	4	5	14	11
White Stork	27	1	3	8	9	6	27	13
Spoonbill	?	22	12	12	17	14	77	16
Honey Buzzard	62	7	11	12	9	6	45	15
Red Kite	?	1	3	9	12	10	35	18
Montagu's Harrier	?	13	28	11	14	8	74	23
Goshawk	?	6	2	6	1	3	18	9
Rough-legged Buzzard	?	1	20	80	14	4	119	17
Osprey	?	23	30	39	49	55	196	25
Spotted Crake	?	5	4	12	3	5	29	16
Corncrake	?	17	23	13	5	5	63	20
Kentish Plover	?	9	6	10	16	9	50	17
Dotterel	?	6	6	25	36	27	100	16
Temminck's Stint	28	5	10	11	10	21	57	20
Pectoral Sandpiper	11	3	2	5	7	8	25	16
Red-necked Phalarope	53	3	3	2	4	2	14	10
Grey Phalarope	?	15	11	23	9	56	114	21
Pomarine Skua	41	58	76	262	450	524	1370	25
Long-tailed Skua	13	1	0	0	0	3	4	4
Mediterranean Gull	28	54	48	46	94	240	482	25
Sabine's Gull	15	0	5	1	2	2	10	8
Iceland Gull	22	5	3	2	0	16	26	10
Glaucous Gull	43	10	24	30	13	58	135	23
Gull-billed Tern	41	17	3	1	1	8	30	11
Caspian Tern	1	4	3	3	0	2	12	10
White-winged Black Tern	12	2	3	8	5	5	23	11
Black Guillemot	5	3	1	0	0	2	6	5
Little Auk	33	17	10	5	8	19	59	18
Alpine Swift	2	2	4	3	3	8	20	15
Hoopoe	?	35	69	46	58	26	234	25
Wryneck	?	33	103	96	106	62	400	25

TABLE II: Passerine Records in Five Year Periods (Number of individuals)

	Prior to 1961	1961-65	1966-70	1971-75	1976-80	1981-85	1961-85 Total	Years recorded
Shore Lark	109	8	11	31	2	4	56	14
Richard's Pipit	33	1	16	2	2	2	23	11
Tawny Pipit	59	10	28	30	35	30	133	24
Waxwing	?	306	130	79	15	5	535	19
Dipper	6	1	0	0	0	0	1	1
Bluethroat	33	11	37	12	6	4	70	17
Ring Ousel	?	410	810	350	660	270	2500	25
Aquatic Warbler	10	2	7	12	3	8	32	12
Icterine Warbler	0	1	4	5	4	5	19	13
Melodious Warbler	2	8	3	4	3	11	29	18
Barred Warbler	2	3	5	7	5	4	24	14
Yellow-browed Warbler	0	2	6	7	2	16	33	15
Pallas's Warbler	0	0	4	5	1	2	12	7
Firecrest	?	43	308	425	404	519	1699	25
Red-breasted Flycatcher	1	0	5	2	3	4	14	10
Golden Oriole	92	6	11	6	10	18	51	19
Red-backed Shrike	?	20	13	18	42	17	110	24
Great Grey Shrike	?	21	59	81	49	11	221	24
Woodchat Shrike	17	0	1	1	5	4	11	7
Raven	?	1	0	0	2	0	3	3
Serin	22	2	8	20	21	25	76	21
Lapland Bunting	?	23	36	11	18	20	108	22
Ortolan Bunting	13	7	8	5	5	11	36	18
Average Contributors to Bird Report		167	274	339	324	385		

TABLE III: Location of records for ten scarce species

	East Head-Bognor	Climping-Adur	Shoreham-Cuckmere	Crowlink-Pevensey	Bexhill-Midrips	Total
Richard's Pipit	4	1	1	11	6	23
Tawny Pipit	8	11	12	88	14	133
Bluethroat	18	2	11	28	11	70
Icterine Warbler	2	1	1	13	2	19
Melodious Warbler†	14	0	0	17	1	32
Barred Warbler†	1	1	1	21	2	26
Yellow-browed Warbler	3	3	6	19	2	33
Pallas's Warbler‡	2	1	1	12	0	16
Red-breasted Flycatcher	2	1	1	10	0	14
Ortolan Bunting	3	2	7	24	0	36

† includes all records (i.e. Melodious Warbler in 1957 and 1958 and both Barred Warblers in 1959)
‡ includes 1986 records

TABLE IV: Autumn arrival dates in ten day periods

	Spring Total	August (i)	(ii)	(iii)	September (i)	(ii)	(iii)	October (i)	(ii)	(iii)	November (i)	(ii)	(iii)	Autumn Total
Richard's Pipit	1						6	4	5	6	1			22
Tawny Pipit	4	2	2	27	29	16	37	11	4	1				129
Bluethroat	8			8	14	23	9	5	1	1	1			62
Icterine Warbler	2		6	7	1	2	1							17
Melodious Warbler†	3	3	4	3	7	6	4	2						29
Barred Warbler†	0			3	9	9	4	1						26
Yellow-browed Warbler	3					1	1	4	15	5	2	1	1	30
Pallas's Warbler‡	0								3	2	5	6		16
Red-breasted Flycatcher†	1				2		4	3	1	4				14
Ortolan Bunting	2		1	7	7	14	2	2		1				34

(i) first ten days of month (ii) middle ten days of month (iii) last ten days of month

† includes all records (i.e. Red-breasted Flycatcher in 1948, Melodious Warbler in 1957 and 1958 and both Barred Warblers in 1959)

‡ includes 1986 records

APPENDIX OF RARE BIRDS

Brief mention should be made of some of the very unusual species seen in Sussex during the last twenty-five years. In this period at least thirty-nine new birds have been added to the Sussex list, but only one of these was also a first for Britain. New birds for Sussex and rarities recorded on three or fewer occasions in our period are listed below. Birds new for Sussex are marked*. †denotes the number of subsequent records not listed here.

1961 White-tailed Eagle at Selsey Bill on July 30th.
Ivory Gull at Portobello, Brighton on November 19th.
Bonaparte's Gull at Portobello, Brighton on June 20th.
* Savi's Warbler at Selsey Bill between April 10th-18th. †?.
* Subalpine Warbler at Pagham Harbour on May 17th.
* Yellow-browed Warbler at Selsey Bill on September 17th. †32.

1962 * 4 Cattle Egrets at Pagham Harbour on April 27th. †3.
* Stilt Sandpiper at Chichester Gravel Pits from September 1st-7th. Second British record.
* Baltimore Oriole at Beachy Head on October 5th. Second British record. Oddly this was an adult male.
* Cetti's Warbler on the Crumbles on October 9th. Second British record.†?.

1963 300 Cranes between October 30th and November 4th. †11.
Stilt Sandpiper at Manhood End from August 7th-13th. Fourth British record.
Slender Billed Gull at Rye Harbour on April 28th. Second British record.
* Whiskered Tern at Darwell Reservoir on September 3rd.

1964 Great Snipe at Pagham Harbour on November 10th.
Little Bunting at Langney Point on October 15th.

1965 Glossy Ibis at Pagham Harbour on April 22nd-23rd.
Dowitcher on Sidlesham Ferry from February 14th to March 15th, identified as a Short Billed, recent scrutiny of the record has revealed it to be a Long Billed.
* Icterine Warbler at Beachy Head on September 5th. †18.

1966 * Surf Scoter at Rye Harbour on December 3rd.
Desert Wheatear at Beachy Head on April 17th-21st.

1967 * Great Spotted Cuckoo found dead at Shripney, Bognor on August 4th.
* Red-rumped Swallow at Beachy Head on April 23rd. †3.

1968 Little Crake at Beachy Head on April 15th.
* Snowy Owl at Seaford Head on November 8th.
* Pallas's Warblers at Beachy Head on October 18th-20th, 27th-28th and 30th. †11.
Nutcrackers at Hailsham from August 25th-31st, Beachy Head on October 2nd and shot at Coldwaltham on October 16th.
* White-throated Sparrow at Beachy Head from October 19th-30th.

1969 Terek Sandpiper at Pagham Harbour on May 10th.
* Red-throated Pipit at Beachy Head from October 19th-20th.

1970 Blue-winged Teal at Church Norton and Chichester from May 12th-14th.
* Black Kite arriving from sea at Beachy Head on April 12th. †5.
* Franklin's Gull at Arlington Reservoir on July 4th. Second for Britain.
Red-throated Pipit at Arlington Reservoir from October 13th-15th.
* Bonelli's Warbler at Beachy Head on August 25th. †5.
Nutcracker at Beachy Head on August 22nd.

1971 * Wilson's Phalarope at Arlington Reservoir, Cuckmere Haven and Pagham Harbour between September 25th and October 6th (when shot).
Black-headed Bunting at Rye Harbour on September 8th.

1972 Gyrfalcon near Cissbury from March 11th-24th.
Stilt Sandpiper at Sidlesham Ferry on July 14th.
4 Short-toed Larks at Beachy Head on October 2nd.

1973 * Lesser Kestrel at Steyning on November 4th.
Red-throated Pipit at Beachy Head on October 5th.

1974 * Black-browed Albatross in Chichester Harbour on May 10th.
* Killdeer at Sidlesham Ferry on March 30th.
White-rumped Sandpiper at Sidlesham Ferry from August 24th-26th.
Spotted Sandpiper at Weir Wood Reservoir from August 11th-17th.
* Dusky Warbler at Beachy Head on October 18th.
* Radde's Warbler at Beachy Head on October 18th.

1975 * Isabelline Shrike at Pagham Harbour from March 1st to April 20th.

1976 Great Snipe shot at Bodiam in late September.
* Sardinian Warbler at Beachy Head from August 23rd-October 30th.

1977 Surf Scoter off Pett Level from November 23rd to December 2nd.
Spotted Sandpiper at Barcombe Reservoir from November 3rd-11th.
Wallcreeper at Ecclesbourne Glen from April 6th-10th.

1978 Collared Pratincole at Rye Harbour from June 8th-9th.
* Greater Sand Plover at Pagham Harbour from December 9th to January 1st, 1979. First British record.
* Sociable Plover at Arlington Reservoir from October 9th-10th.

1979 * Moustached Warbler at Angmering on August 18th.
White-rumped Sandpiper at Pett Pools from September 28th to October 3rd.
* Upland Sandpiper at Bracklesham from December 21st-24th.

1980 —

1981 White-rumped Sandpiper at Sidlesham Ferry from August 1st-15th.
Black-winged Pratincole at Sidlesham Ferry on October 14th.
* Greenish Warbler in song at Beachy Head on May 19th.

1982 Squacco Heron at Mannings Heath from June 16th-19th.
* Ring-necked Duck at Chichester Gravel Pits from December 4th-31st.

1983 Rose-coloured Starling in Hassocks on July 22nd.

1984 * Least Sandpiper at Pett Pools on July 28th.
Marsh Sandpiper at Waltham Brooks from July 8th-11th.
* Ring-billed Gull at Weir Wood Reservoir from December 10th-20th. †2.
Sooty Tern at Rye Harbour on July 9th.
* Thrush Nightingale at Beachy Head between August 26th and September 1st. This bird had been ringed on August 14th in Vestfold, Norway.
Subalpine Warbler at Fairlight on April 22nd.
Rose-coloured Starling at Beachy Head from August 24th-26th.
* Trumpeter Finch at Church Norton from May 18th-23rd, when killed by a Sparrowhawk. Fourth British record.

1985 * Great White Egret at Thorney Deeps on June 15th.
* Sora Rail at Pagham Lagoon from October 26th to December 24th.
Little Crake at Cuckmere Haven from March 6th-16th.
Sociable Plover near Cissbury and in the Adur Valley from October 31st to December 30th.

HABITAT CHANGES

R. D. M. Edgar

The most rapid changes in the Sussex countryside have taken place in a period of which the last twenty-five years have been a major part. It is often thought that the most recent changes are the most profound but one must remember that in previous centuries changes included the clearance of the original wildwood, reclamation of estuaries and the dawn of the Industrial Revolution. What is incontrovertible is that the pace of recent change has been exceptional.

This is of particular significance since the wealth of our fauna and flora depends on its ability to adapt to changing circumstances and whereas in history a slow but large change in agricultural practice allowed time for many species to adapt (the more sensitive disappearing), now the rate of change is such that only the most resilient can cope. One might assume, or at least one ought to be able to, that with so much happening in our countryside we would have an extensive countryside monitoring system to enable these events to be followed. Sadly this is not so. It is astonishing how little material is available to demonstrate habitat changes on a national or local scale. There has never been a complete assessment of the wildlife habitats in the county and what little precise information exists either concerns only part of the county or has not been repeated so that few comparative figures are available.

An analysis of habitat change within West Sussex during the period 1971-81 is being completed by the County Council at present but results are not yet available. No initial review of East Sussex has ever been undertaken. What therefore, can we use as basic information? Certain specific surveys have taken place which vary from the extremely accurate (human population censuses) to the approximate (Forestry Censuses) but most surveys were not conducted for conservation purposes and require careful interpretation. The only other sources are the results of recollections, both written and oral, and the imprecision inherent in this is obvious.

Before examining specific habitats, what can we deduce as the basis for the habitat changes that have undeniably occurred? Great change has particularly taken place in the resident population of Sussex, general mobility has increased and the agricultural industry has been revolutionised. International events have shaped the history and development of this country and their effects are felt in Sussex as elsewhere. One cannot deny both these and national development when considering local changes since very few are generated within the county. However, the rise in the resident human population is to an extent a particular Sussex problem.

In 1962, when the Sussex Ornithological Society was formed, some 1,100,000 people lived in Sussex. At the last available estimate of June 1985 there was a population of 1,369,000 with a projection for 1986 of nearly 1,400,000. Assuming the latter figure has now been reached, this rise of 27% is far higher than the average for England and Wales over the same period. This has nothing to do with an exceptional local fecundity but is a result of immigration encouraged by employment prospects (particularly associated with the new towns and services such as Gatwick Airport), a move to the countryside (and commuting to work) and a mild climate for retirement ("retirement migration" (Fielding and Dunford 1983)). The increased pressure for space and resources from this additional and comparatively wealthy population inevitably produces a change to the very countryside they have come to enjoy and this has repercussions for the bird community as well.

Closely associated with the resident population is its increased mobility as improved networks for communication, principally roads, have been constructed. Associated with this is the influx of non-residents on which quite a large part of the local economy is built. The construction of the M23 and the dualling of more roads has greatly reduced the access time to the Sussex coast from London. Outings to Sussex at the weekend have for long been a popular activity and the great mobility of tourists when the county has been reached (instead of traditionally remaining in a coastal resort) has enormously increased the level of disturbance to birds. Concomitant with the increase in visitor numbers is the opening up of

access areas so that many of the most important wildlife habitats are "available". It is not inappropriate to remind ourselves that one of the causes of increased disturbance has been the popularity of bird watching itself and other natural history associated activities.

How have individual habitats fared since 1962? Perhaps only one thing has remained virtually the same and that is the actual land area of the county (ignoring political boundary changes!) To a large extent the geological structures and the soils derived from them dictate the vegetation but it is management which is under our control and it is this that has varied. In the following account I have dealt with each major habitat division in the same order as I did in Shrubb (1979) for comparative purposes.

Coastland

In Shrubb (1979) I referred to the Sussex coastline as one of the most developed in Britain and not surprisingly this has intensified. The pressure for development on even the narrow gaps between settlements is considerable and even where no outward expansion of coastal towns has been allowed the infilling quickly absorbs any semi-natural habitat remaining. The Brighton Marina is one of the more major coastal developments.

The coastal cliff faces are subject to a constant and largely natural change through erosion but in recent years a great deal of shoring up has taken place at the base of the cliffs east of Brighton. Here the Southern Water Authority has also sloped the cliff face to prevent rock falls and this has reduced the number of cliff ledges available to birds. Prater (1985) plausibly suggests this is the reason for the move of Herring Gulls largely away from our chalk cliffs. Falls, sometimes very large, continue on the chalk cliffs at Beachy Head and on the sand and clay Hastings cliffs. However, there are sufficient cliff nesting sites for the expanding populations of Fulmars and Kittiwakes, which first nested in the county in the mid-seventies.

The changes that have overtaken mudflats and estuarine habitats have been much greater. Sussex has largely been spared the extensive reclamations seen in Portsmouth Harbour, Southampton Water and on the east coast but recreational development has deprived us of the fascinating shallow pools at Manhood End, now Chichester Yacht Basin constructed in the mid 1960's. With the much increased water associated recreational activities there has been loss of intertidal habitat to jetties, pontoons, mooring buoys and the like.

The use of toxic anti-fouling paints on yacht hulls may have led to a significant decrease in molluscs and other marine invertebrates with consequences for their avian predators such as the Shelduck and a variety of waders. Certain subtle and not entirely understood ecological changes have also been taking place, notably in Chichester Harbour. The eelgrasses *Zostera* sp., the favoured foods of Brent Geese and Wigeon, have recovered from a decline and the green alga *Enteromorpha intestinalis* has increased enormously. The latter is, at least partly, the result of increased discharges of treated sewage entering the Harbour. The Brent Geese have certainly benefited from this change but the invertebrate feeding species may not be finding their food so accessible. However, an intriguing change in the salt marsh is occurring which might increase the amount of intertidal mud available to waders. The vigorous hybrid cord-grass *Spartina anglica* after half a century of rapid expansion is equally rapidly dying back and the prominent mud banks it accreted are now eroding to leave soft muds.

Pagham Harbour is fortunately effectively protected against the changes wrought by water borne recreation but is undergoing its own changes. Here silt is accumulating so that despite the die back of *Spartina* the level of the Harbour bed is rising, so that the low tide channels are becoming more constrained and the mudflats drier.

Although the problems associated with changing farming practices are dealt with later the conversion of permanent pasture to arable on the Chichester plain requires mention here. This has particularly affected the increasing population of Brent Geese which have been forced on to arable crops and many of the waders which favour damp pasture such as Golden Plover, Lapwing, Ruff and Black-tailed Godwit find increasingly little available. The abandonment of Thorney Island as a military airfield has encouraged the use by these birds of the grass fields there, but recent occupation by the Army suggests the availability may be short lived.

There are few sand dunes and beaches in the county but if anything the area of dunes has actually increased. The East Head dunes largely washed away in 1963 but tremendous efforts by the National Trust have restored and enlarged them. This has provided

additional breeding habitat for Ringed Plovers and wintering buntings, finches and Skylarks. Camber dunes are also receiving more effective protection from human induced erosion but the pressure on those at Climping is so intense as to defy conservation measures. Sand beach habitat being largely intertidal is less likely to change.

Shingle is a more important breeding bird habitat in the county and many Ringed Plovers have lost their nesting sites beneath development at Pagham Beach, Shoreham and Newhaven. The extensive shingle of Rye, Pagham and Chichester Harbours benefit from being within Local Nature Reserves and so retain their tern colonies. The shingle of the Crumbles is the most rapidly changing of all. Once the favoured ground of ornithologists and birds alike, a large proportion is now covered with houses. That not being covered in bricks and mortar is exploited by the gravel industry which although temporarily increasing ornithological variety through the resulting wet pits is planned for housing, shopping centres and recreational use which will effectively obliterate the remainder.

One might expect that if anywhere would remain the same it would be the open sea but this is certainly not so. With the increase in human population the amount of untreated sewage entering the sea is continually rising and although to the benefit of some birds, notably gulls, the sea bed has become largely sterilised and structurally altered through siltation for a considerable distance from many outfalls. Add to this the problem of continual, often small, oil pollution incidents and the Sussex coastal waters are becoming a much less hospitable place for birds.

Woodland

Of all the important avian habitats the pride and joy of Sussex must lie in its woodlands with some eighteen per cent of the county. If one considers the Weald alone, then the woodland proportion is very much greater, since the East Sussex Downs and the coastal plain are largely treeless. It is very much to be regretted that no really reliable figures exist for changes in our woodlands. The surveys conducted by the Forestry Commission were based largely on samples and each used a different baseline and description of categories so that I have found it impossible to make a true comparison between the 1965-67 and 1979-82 woodland censuses. Even the overall totals are difficult to compare since the earlier survey gives, 68,000 *ha* of woodland over 0.4 *ha* in size and the later 62,500 *ha* of over 0.25 *ha*. The Forestry Commission regard the differences in woodland area between the surveys of 1947 and 1979-82 as "too small to suggest any significance" but I cannot believe that there has been no reduction since although there has been some planting of new woodland, the work of the Nature Conservancy Council and East Sussex County Council both indicate some decline. Indeed in a survey conducted by Brighton Polytechnic (Countryside Research Unit 1982) 21% of all farmers questioned had cleared some woodland within the previous decade. Ancient woodland has been lost both to urban and agricultural use, the majority to the latter. It is impossible to give more than a rough indication of the quantities involved but it is probably in the order of 0.5% per annum. In such a heavily wooded county this may seem little, and it is certainly less than elsewhere in Britain, but it is mainly the semi-natural broadleaved woodland, which is the most valuable habitat for birds, that disappears.

Within the period under review the most significant change for birds has been in the type of woodland habitat rather than the overall quantity. The proportion of conifers has increased, mainly from replanting of deciduous woodlands but also because it is largely the deciduous woodland that has been converted to other uses. Conifers now comprise between a quarter and a third of all Sussex woodlands and it is mainly the larger commercially managed woodlands that have had their composition changed in this way to the detriment of most woodland bird species. One interesting exception is the Firecrest which first bred in 1973 and is almost certainly more common than is generally realised with most breeding pairs having been found during intensive woodland survey (Bealey and Sutherland 1983).

The other particularly important change that has been continuing in Sussex woodlands for some time is a considerable change in management practice, particularly affecting coppice timber. An example of this decline is shown by the virtual disappearance of the Sussex hop industry which at one time was a large consumer of coppice poles. In 1962 there were still 719 *ha* of hops grown but in 1985 this had declined by 70% to 214 *ha*. Chestnut is still fairly heavily worked as coppice in mainly pure stands which have a rather small bird community. The mixed coppice with standards, an understorey of regularly worked hazel under oak, is no longer considered financially valuable and much of this has

been abandoned and is slowly degenerating. No doubt eventually if left to its own devices it will be replaced by high forest. It is difficult to know precisely what influence this has on birds, but many woodland species are attracted to well managed coppice with standards, and Nightingales particularly prefer regularly coppiced woodland. It will be interesting to see if the recent policy changes, introduced by the Forestry Commission, to encourage the better management of broadleaved woodlands, will redress some of the balance.

Heaths and Commons

Although a somewhat disparate group of habitats this includes the open dwarf shrub communities. The rather specialised chalk heaths had mainly disappeared before the 1960s and with them many of the downland Stonechats and Dartford Warblers. Of the open Wealden commons and heaths, some have disappeared through afforestation (with conifers) but lack of management has become even more of a problem. Many of these areas are covered by rights of common but the exercise of these, particularly by grazing, has virtually ceased. A striking example of this is on Ashdown Forest and is shown in Table I. With some 2,600 ha of more or less open habitat, even the numbers of grazing animals at its highest is clearly insufficient to maintain open vegetation and the decline of active commoners is highly indicative of a serious management problem. When heaths are no longer managed they quickly revert to scrub and then woodland, on the sandier soils this being birch and self sown Scots pine *Pinus sylvestris*. The scrub, with much gorse *Ulex europaeus* and bracken *Pteridium aquilinum* is vulnerable to intensive fires. It is only where there is active management such as at Iping and Lavington Commons, that dwarf shrub communities can be expected to remain.

An additional pressure on the Greensand heaths comes from extractive industries and although a sand pit can have some interesting ornithological features, it is frequently a poor replacement for the Tree Pipits and Nightjars of open heath.

TABLE I
Ashdown Forest — Grazing
Approximate numbers kindly supplied by Ashdown Forest Conservators.

	Sheep	Cattle	Commoners exercising grazing rights
1985	85	7	4
1980	650	15	5
1970	300	25	10
1960	500	50	25

Freshwater Habitats

There has been an increasing trend for the euphemistically termed "improvement" of Sussex rivers so that these have less marginal vegetation including trees, and more intensively managed banks. Amongst the species which have not benefited from this is the Kingfisher which now breeds more regularly on ponds and lakes than along rivers. No doubt other species such as Sedge and Reed Warblers have similarly suffered and I strongly suspect that the Lesser Spotted Woodpecker may be losing ground due to the removal of riverside willows *Salix* sp. and alders *Alnus glutinosa*.

On the whole few of the larger ponds and lakes have disappeared and a welcome trend is for the creation of new amenity lakes within private grounds. The greatest threat to large water bodies stems from the enforcement of regulations concerning the safety of dams which has led to the cheaper expedient of the lowering of water levels of some lakes including Chingford Pond.

Small garden ponds have surely increased (see under Urban Areas) but farm ponds have certainly decreased. In a 3 *km.* wide zone at the foot of the scarp of the Downs between the Ouse and the Adur, Beebee (1981) from a study of the Ordnance Survey 1:25,000 maps and the present situation has shown that 33% of farm ponds have been lost. A good proportion of this will have been recently. He also showed that in the last fifty years 70% of the dewponds on the Downs surrounding Brighton had disappeared with, between 1977 and 1983, 10% of those remaining having been additionally lost. Although a minor habitat as far as birds are concerned this gives an indication of the speed of changes.

On the plus side the amount of permanent open water has increased considerably in the last twenty-five years with the construction of Barcombe Mills, Arlington, Bewl Bridge (now called Bewl Water) and Ardingly Reservoirs — a gain of 450 *ha*. Although some of this is at times used for recreation most is available at least for wintering wildfowl. Similarly the number of gravel pits at either end of the county has increased, but those at Chichester tend to be of a transient nature being much in demand for filling with refuse and subsequently used for agriculture.

Of the wetland habitats it is really the Levels that have suffered most. There has been a considerable expansion in pumped drainage schemes or other methods of removing surplus water combined with a more intensive management of grassland for silage, a longer growing season and often replacement by cereals. In the last two decades the construction of over 20 pumping stations has led to the more efficient drainage of over two thirds of the wet grasslands. On Pevensey Levels alone, more than 2,600 *ha* is subject to pumped drainage schemes and this is 70% of the total area. Since other areas not served by such schemes have been used for cereals, relying on gravity drainage alone, almost 80% of the area has become unsuitable for many forms of wetland wildlife. The excavation of deeper and steeper sided drainage ditches combined with increases in fertiliser and herbicide application has lowered water quality and restricted emergent plant growth so removing habitat for Reed and Sedge Warblers as well as Yellow Wagtails. The drying out of pasture (and often conversion to arable), classically demonstrated at Pevensey Levels and in the valleys of the Arun, Adur, Ouse and East Sussex Rother have much reduced the Lapwing, Redshank, Snipe and wildfowl breeding populations. These are now concentrated into a few remaining suitable, and vulnerable areas of permanent damp pasture. It is very noticeable how these are also favoured by the wintering thrush and Golden Plover flocks. Even on Amberley Wild Brooks, where pasture conversion has not taken place, the water levels have been sufficiently controlled to reduce the wet grassland breeding and wintering bird populations. It is of small consolation that this is one of the habitats most amenable to restoration, at least from an ornithological viewpoint.

Farmland

Of all the changes that have affected bird communities in the county, the most drastic has been those resulting from the agricultural industry. This is hardly surprising since two thirds of the county has this as its primary land use. The detailed reasons generating agricultural change do not need to be dealt with here except to state that they result from agricultural policies pursued since the Second World War and the Common Agricultural Policy of the European Community which we joined in 1974. There has been a revolution in technology, applied chemistry and plant breeding that has both directly and indirectly affected farmland birds. There are however, a couple of changes in the agricultural landscape that have somewhat different origins.

The advent of Dutch elm disease in the late 1960s has effectively extinguished the English elm *Ulmus procera* from most of Sussex. Although this may have only a limited effect on bird populations it is bound to have led to a reduction in hole nesting species (Osborne 1982) particularly in the intervening period between the removal (or collapse) of dead elms and the growth of replacement hedgerow trees where these are tolerated. Where elm predominated, the coastal plain and low clay weald, there are fewer alternative nesting sites in the form of copses and although hedgerow removal is a comparatively small problem in Sussex it has coincided with elm disease and been most marked in the elm dominated areas. This may or may not be a coincidence. The other change, which although promoted by man, did not involve technological change resulted from the import of myxomatosis. This disease swept through the abundant rabbit population just before the beginning of our review period but its effects on vegetation took a few years before they became pronounced. At least twenty species have benefited from the surge of scrub growth that took place particularly on the scarp slopes of the Downs particularly *Sylvia* warblers, thrushes, finches and buntings (Prater 1982). Another group which may have derived some benefit are the passage migrants which have heavily utilised this scrub. Unfortunately the natural plant succession determines that these areas will develop into woodland which, at least in shallow soils, is of less value as a feeding area, so that management of scrub is becoming imperative if it is to retain its ornithological interest.

The changes just described are small in scale compared with those wrought by the cultivator, new crop varieties and increased chemical usage. The summarised agricultural

statistics in Table II, which is updated from the one I prepared for Shrubb (1979) with the figures for 1962 and 1985 (the latest available) in bold face show only part of the picture. A decline in total farmed land (to urban development) has taken place accompanied by a more intensive usage of land. The increase in cereals area by one third and the decrease in temporary leys by rather more is particularly marked. In addition it must be remembered that the cereal hectarage is now much more productive with the intensity of management greatly increased, the denser heavier yielding crop excluding arable weeds. The intensity of cereal cropping on the Downs is particularly marked and virtually no areas of short grazed traditional pasture exist on the south facing shallow (dip) slopes. Altogether only some 5 or 6% of the Downs remain as unimproved grazed pasture the loss between 1966 and 1980 alone being in the order of 20 to 25% — half to cultivation and half to scrub encroachment. Combined with a recent and extremely marked swing away from spring planted crops and even earlier autumn plantings (even more marked away from the Downs) conditions have been created that totally preclude such once typical downland species as Stone Curlew and Wheatear which have become extinct as downland breeders in the last twenty-five years, the former departing this county entirely, the last pair nesting in 1981 (Prater 1986). Another primarily downland species, or at least closely associated with it, which has become extinct is the Cirl Bunting although the reasons for this seem more allied to climatic changes. The Lapwing too has been greatly reduced as a downland breeder due to management changes (Shrubb 1985). Evidence suggests that wintering birds have not fared much better. Certainly the cleaner crops and more efficient harvesting methods (often combined with burning too) have resulted in fewer weed seeds and less spilt grain to attract finch and bunting flocks which, except around farmsteads, are a much rarer feature of the Downs.

In addition to the changes in farming patterns of traditional crops completely new ones such as oilseed rape and maize have appeared in recent years. There was 3403 *ha* of the former grown in 1985 — it was not grown at all in 1962. It seems likely that other new crops will be introduced but farming practice is unlikely to make them any more attractive to birds. After such a long period of intensification of agriculture there is now a movement away from generalised increased production through utilising more land and with the advent of the South Downs Environmentally Sensitive Area and the changes in agricultural policy, the downland bird community should not decline any further. Whether there will be a significant resurgence is another matter.

The decline in permanent pasture and rough grazings, initially a feature of the more easily worked soils and shown in Table II has latterly been more associated with the river valleys and coastal plain. This has had even more severe consequences for our avifauna and was dealt with under Freshwater Habitats.

The four-fold increases in the use of nitrogen on grass in the last two decades combined with a much increased stocking rate is an indication of the much more intensive management of farmed land and is well demonstrated in Table III of Shrubb (1985).

TABLE II

Agricultural Areas of Sussex, 1939-1985 (adapted from M.A.F.F. Annual Agricultural Returns)

	Arable				Grassland		
Year	Cereals	Temporary Leys	Other Crops	Total Arable	Permanent Pasture	Rough Grazings	Total Grasslands
1985	**76,951**	**34,724**	**16,042**	**127,717**	**86,583**	**9,916**	**96,499**
1974	72,724	46,234	15,625	134,583	87,733	9,520	97,253
1969	73,463	47,613	16,329	137,405	88,715	11,200	99,915
1967	75,335	47,465	15,253	138,053	93,817	10,556	104,373
1963	58,577	59,990	17,721	136,288	96,736	11,493	108,229
1962	**57,986**	**60,364**	**17,621**	**135,971**	**96,900**	**11,742**	**108,642**
1957	59,512	50,458	24,985	134,955	96,249	17,720	113,969
1939	24,644	9,478	20,398	54,520	160,304	34,113	194,417

All areas in hectares

If recent years have seen large scale agricultural changes that have led to the general impoverishment of our farmland bird community (O'Connor and Shrubb 1986) then one change in agricultural practice is to be commended. Although the use of chemicals as a farming tool will not diminish, the more careful control and application of insecticides and their more specific and non-persistent nature is allowing the recovery of the previously drastically reduced raptor populations. However, the increased use of aerial application of some herbicides and fertilisers is a matter of concern since non-target areas can be badly affected.

With the move away from mixed farming to increasing specialisation there seems little reason to hope that there will be a noticeable increase in the farmland bird community.

Urban Areas

The increase in resident population and expanding demand for home ownership and services has led to an increase in urban land and the total built-up area is now 10% of the county. Most of the demand has been met from agricultural land which is usually of lower quality and therefore potentially of greater wildlife interest. However in-filling by the development of large urban gardens greatly reduces a valuable habitat. Certainly where woodland has been felled there is a net loss to the bird community as a whole but urban construction, particularly with the extent of bird feeding and garden shrub planting is quite likely to be of at least equal value to some of the agricultural habitat lost; it depends very much on the individual case. Many woodland edge species seem to have done very well in urban areas and even those such as the Reed Bunting have accepted some of the opportunities available. The sheer volume of building seems to be the main problem here and since the human population numbers of this country are almost static the drift to this area is against the interests of Sussex birds.

On the positive side it must be recognised that the general interest in birds (and wildlife generally) evinced by our urban based community has enormously increased in our period and the liberal supplies of feed and garden nestboxes has maintained a healthy density of garden birds. A survey by Beebee (1983) showed that about 15% of all gardens in central southern Sussex had ponds which no doubt increases the diversity and again demonstrates public interest in wildlife.

Conclusion

That there has been a general lowering in the habitat diversity within the last twenty-five years is an inescapable conclusion. Although Shrubb (1979) showed that overall gains and losses in bird species was largely in balance, it is clear that it is the more specialised ones that have suffered most. I strongly suspect that the total number of individuals of many species has significantly declined. It is within the farmland habitat that so many of our birds reside and this habitat is becoming more and more hostile to them. Unfortunately this is also one of the areas in which our local knowledge is least complete.

It may be that we have witnessed one of the periods of most drastic change and that conditions will not deteriorate further, but it might be over-optimistic to hope that there will be a major improvement. However, the increased awareness of wildlife and vigilance of the general public is to be applauded and many of the remaining most specialised habitats have received protection in one form or other. It is absolutely vital that we should monitor the changes that are taking place amongst bird communities so that we will improve our understanding of how to ameliorate change and encourage improvements. It is a most important function of the S.O.S. to play a leading role in this so that in another twenty-five years time we will have a detailed catalogue of what has happened to our avifauna.

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CONSERVATION — A REVIEW OF THE SOCIETY'S WORK

A. Simpson

Five years after the inception of the Society, David Lang was elected to the Council as Conservation Secretary with the remit of dealing with special items under the heading of "Conservation".

However this was not the start of conservation as far as the Society was concerned. Much effort was put into trying to prevent the yachting marina being built at Manhood End in 1963. A year later the S.O.S. combined with the Sussex Naturalist Trust in persuading the West Sussex County Council to declare Pagham Harbour a Local Nature Reserve. In the same year vegetation was removed from the tern islands at Rye Harbour and regular watching was started at the same site in an attempt to improve the breeding success of the Common Terns. This surveillance continued in 1965 when 70 pairs nested in two areas and raised 70 young. In 1966 the site at Nook Beach on the east side of the river failed due to lack of support to monitor the site but at Rye Harbour the story was much better with 40 chicks raised.

It was obvious that the west side of Rye Harbour must be a nature reserve and our former President, Guy Mountfort, headed a committee formed by representatives of the Sussex Naturalist Trust, the Nature Conservancy, both Hastings and Rye Natural History Societies and the S.O.S. The Secretary of the Committee, Jack Harrison, drafted a report which was sent to local authorities, land owners and the press. Although this was sent out in 1967, it was not until 1970 that a Local Nature Reserve was established. The notice boards erected by the Society in 1967 asking the public to refrain from disturbing the area seemed to help with the success of Common Tern breeding, 80 young were raised in spite of 50 nests being robbed. The efforts made by Society members who watched over the site in 1968 reinforced their conviction that this part of Rye Harbour merited reserve status. David Lang organised surveillance of the terns every weekend during May, June and July. He was also active on the Nature Conservancy Waterfowl Liaison Panel, as well as being involved with owners of Barcombe Mills Reservoir and with Eastbourne Corporation over the scrub clearance work at Beachy Head.

1969 saw consolidation work on the formation of a nature reserve at Rye Harbour, several meetings of the Committee covering all the ground work necessary for success the following year. The Conservation Secretary was in dialogue with Eastbourne Waterworks Company with reference to Arlington Reservoir which was under construction. Agreement to a floating island was given, also the Society was to be represented on an advisory body when the reservoir was completed. A farmer sympathetic to our cause allowed David to consider a scheme in the Glynde Reach which would help wintering wildfowl in the area. This involved damming a stream and piping the water to an adjacent field which could thereby be flooded and provide a large expanse of water in an area where farming interests were draining many of the wet meadows. In the first year of the scheme the Wigeon numbers rose from 800 to 1,250.

During 1970 the Society was saddened by the retirement of David Lang due to ill health. We certainly owe him a great debt, and the fruits of his early work are still very evident. In the same year which was designated European Conservation Year, a full-time Warden was appointed at Rye Harbour to coincide with the establishment of the Local Nature Reserve there. The Warden was supported by the conservation fund set up by the Society. This fund was also used to help run the Pagham Harbour Local Nature Reserve which was set up by West Sussex County Council in 1971.

At this time Dave Chelmick was standing in with Bill Merritt to carry on work that David Lang had initiated. They made recommendations to the Seven Sisters Country Park and to Eastbourne Waterworks Company on the planting of the surrounds of the new reservoir. At the other end of the county we had reached an agreement allowing the Society to have floating islands on one of the gravel pits near Chichester. During the year a new project was being investigated, namely the chance to carry out some management work at Charleston reedbed in the Cuckmere Valley. Easter working parties began at Rye Harbour

and these have continued to the present time. Certainly all those who have helped have been rewarded by what we can see at Rye now, and indeed over the years when Easter is early invariably the volunteers get the chance to see the first Sandwich Terns of the Spring together with a late Hen Harrier or Short Eared Owl.

Roger Jackson was appointed Conservation Officer in 1972, the year in which an Ecological Survey of Chichester Harbour was carried out, and the resulting report provided us with all the data necessary to save any section of this most important wetland if threatened. Another important venture was the first conservation task at Charleston reedbed; ponds were constructed and vegetation cleared in an attempt to improve this reedbed. This site was purchased by E. C. Arnold, then Headmaster of Eastbourne College, as a bird reserve as long ago as 1928 for as he wrote in the Introduction to his *Bird Reserves* (1940) 'bird protection is nowadays far more a matter of preserving bird haunts than of making laws to protect birds'. After his death the reedbed passed to Eastbourne College which in turn gave the Society permission to carry out management work to increase and diversify its wildlife. This area thus has an historical interest as one of the first bird reserves in Sussex.

Our conservation workers were introduced to Strivens reedbed near Steyning in 1973 which for some was their first experience of reed cutting. What was possibly more exciting was to stay on until early evening and watch the large numbers of Corn Buntings coming into roost in the reedbed.

Raft construction was added to the skills of the Society members and the first one at a Chichester gravel pit had at least one pair of Common Terns breeding. Two more rafts were constructed for use at Arlington Reservoir and indeed the design has subsequently been passed on to other organisations. Whilst no birds nested on the Arlington rafts, those stationed in the gravel pits have been a continuing success and in fact provide the largest inland breeding site for Common Terns in the county.

The Pett Pools Project is now included in many national birdwatching guides. It was started in September 1975 when the Southern Water Authority reduced the level of one of the Colonel Body Memorial Pools alongside the Pett/Winchelsea road to enable them to carry out a survey of the fish. The reduction in water level naturally produced some muddy margins and a page from a Hastings member's notebook makes interesting reading:

> 11th September 1975: Shelduck 30, Oystercatcher 1, Ringed Plover 6, Turnstone 5, Snipe 2, Bar Tailed Godwit 21, Spotted Redshank 2, Little Stint 9, Dunlin 66, Curlew Sandpiper 28, Ruff 2, Black Tern 1, Common Tern 4, Little Tern 2, Sandwich Tern 8 plus the bird which caused quite a stir — a Pectoral Sandpiper.

Having taken over as Conservation Officer earlier that year, I negotiated a lease with the Southern Water Authority to allow the Society to control the water level from July to September. The Summer of 1976 was dominated by this new project. Initially some 800,000 gallons of water were pumped into an adjacent pool. Following a particularly hot spell some water had to be pumped back but eventually the level returned to normal by the end of September due to heavy rainstorms in that month. A comprehensive report was published covering all aspects of the project. Subsequently annual reports have been issued and the proceeds from the sales of the publications have been used to help raise funds to cover the cost of pumping and to attract new members to our Society. It would be invidious to make specific mention of those who have helped with this scheme by giving up many hours to man the pump, record the birds, prepare the reports and provide assistance to the visitors with bird identification each weekend as their numbers are now legion. However their reward is the knowledge that the Pett scheme is one of the best places to watch waders at close range and is particularly important for those who are disabled as the watching can be done from the car.

The weeding of the tern island in Pagham Harbour was continued as an annual Spring task. In addition in 1977 an attempt was made to prevent erosion by erecting a barrier of elm timbers and angle-iron. This did not prove successful as the first strong easterly gale distributed our materials all over the Harbour. At the other end of the county, many hours were spent creating additional islands at Rye by shifting tons of broken concrete pipes and shingle and it must have been an unusual sight for Easter weekend visitors to see six wheelbarrows of shingle being floated out on a raft towards a couple of members standing in the water in the middle of Ternery Pool. For those not keen on shingle, an alternative attraction was the cutting and raking now being carried out regularly at Strivens and Charleston where it was already obvious that our efforts were producing a stronger growth of reeds.

A new site for members was Iping Common Local Nature Reserve, near Midhurst, which is under the management control of West Sussex County Council. Initial work was on bracken control with the bonus of watching Stonechats and Green Woodpeckers while working.

The Sussex Bird Report for 1978 states that 354 man days of effort had been subscribed to conservation by members. This was truly a good year and work was carried out at Rye for the Easter weekend, a new venue at Ashdown Forest, a second new venue being the new Nutbourne Marsh reserve and a third at Woods Mill, the headquarters of the Sussex Trust for Nature Conservation, where we worked on the clearance of the mill stream.

The results of the tern breeding for 1978 were not good: 5 pairs of Common Terns nested on our rafts at Chichester and raised 12 young to the flying stage; at Rye Harbour 28 pairs raised 15/20 young with the Little Terns deserting in late June and only 3 young from the few second nests. The story in Chichester Harbour was even worse due to a disastrous high tide on 22nd June which washed out 31 Little Terns and 69 Common Tern nests. This disaster called for some action so in close liaison with Ann Griffiths, the West Sussex County Council Ecologist, a scheme was devised to raise the level of Stakes Island by a metre in an attempt to keep the nesting area above the highest possible tides in the late Spring and Summer. One of the major supporters of the scheme was Chichester Harbour Conservancy who helped with the transport of materials to the island. The 6ft. diameter drainage chambers were manhandled into position and then filled with chalk and shingle. It was most encouraging that 8 pairs of Little Terns nested at this site in 1979.

Many interesting tasks have been undertaken by Society members and another such project was to help the Warden at Rye, Richard Knight, construct a Sand Martin nest site by cementing horizontal tubes into a rock face and then filling them with sand. This was done on one of the lagoon islands near the new hide and all those who helped were delighted when the site was successfully used by the Martins.

Dew ponds are part of our Sussex heritage and again the Society was able to undertake a major project in this respect at Lavant. With the authorisation of the owner and the farm manager, work was started on the derelict pond by clearing the herbage to assess the size and depth of the pond. In the event it was found that the pond was 50ft. in diameter, 2½ft. maximum depth, 2,000 cubic feet of soil was removed and the capacity is estimated at 15,000 gallons. We allowed two seasons to complete the task and the project was entered for the County Council's countryside conservation award scheme for which a 'highly commended' certificate was received.

During the Winter of 1979 a further raft was constructed in a 'kit' form and then transported and assembled near the gravel pit at Chichester. The launching and siting of this raft was carried out with the help of members of a sub aqua club, yet another example of co-operation between various organisations not necessarily directly involved with conservation.

Two major events happened in 1980, one was the designation of Arlington Reservoir Nature Reserve and the other was the purchase of Ebernoe Common by the Sussex Trust for Nature Conservation. Our Society recognised the importance of the Grade I woodland area by donating £1,000 from the Conservation Fund towards the £90,000 purchase price. Two new areas of work were started. Mallydams Woods at Fairlight near Hastings, a reserve run by the R.S.P.C.A., the other was Buchan Park at Crawley, the task at both places was similar, the removal of rhododendron. At Pett the pool was not pumped out as it was decided to have a "fallow" year.

Under the Society 5-year rule it was necessary to appoint a new Conservation Officer in 1981 and Matthew Sennitt took over, continuing work at the old sites and of course investigating possibilities at new ones. The two rafts in the Chichester gravel pit complex were moved to an adjacent pit to the south which ensures that there is no disturbance from fishing or water skiing. It was in Bill Merritt's days that we learned how to cut reeds and that to promote better growth debris removal was essential. These ideas were put into practice at a new site in Pagham Harbour, near the Crab & Lobster and also at the Severals on the south-west corner of the reserve. Clay Marsh adjacent to Strivens reedbed and Charleston both received work parties to carry out reed management. Woods Mill was not neglected and we again helped to keep the wheel turning by reducing encroaching vegetation and removing excess silt from the mill stream.

The Hastings group of the Society Conservation Corps was formed in 1982 under the

leadership of Ralph Harbord. Their main projects were at Mallydams Wood, Rye Harbour and the Pett Pools scheme. The removal of the silver birch seedlings at Iping Common and small conifers on Ashdown continued and the marked improvement in the habitat was indeed rewarding. It is sometimes said that conservation appears to involve cutting down or removing so it was a pleasure to take part in our first tree planting scheme which was the replacement of a fire damaged hedgerow at Shermanbury. It was also pleasing to report that rather than burning or being left to rot down, the reeds cut in Pagham Harbour were used for thatching.

At Charleston as part of the five year management plan a pond was excavated in 1983 so as to diversify the habitat. It is to be noted that this is the site chosen for an open day to celebrate the Society's 25th Anniversary.

All tasks continued in 1984 with the Pett Pool project being particularly successful and again in 1985 it was time for a change of leadership and Martin Banks took over as Conservation Officer. New projects were started in woodland at Crows Hall Farm, Lavant and at Renches Wood, West Grinstead. Discussions with the owners of Southern Leisure Centre, Chichester were started on the management of the area set aside as a nature reserve and bird sanctuary.

It is one of the tasks of the Conservation Officer to attend meetings with professional ecologists and we must thank them all for their help and tolerance over the past years with us amateurs. Officers from the following organisations have been involved: Nature Conservancy Council, Royal Society for the Protection of Birds, East Sussex County Council, West Sussex County Council, Southern Water Authority, Eastbourne Waterworks Company and the Sussex Trust for Nature Conservation.

The involvement of the Society in conservation work within the county has increased over the years and now stands at a yearly average of 370 man days, with around 20 working parties each year. Tasks are normally undertaken between September and March and for those who turn up the aim of the task is explained, particularly in relation to birds, then if required the use of the tools is demonstrated with safety uppermost in the leader's mind. Remember it is not all hard work. You do as much as you want; all ages are welcome, and some of the rewards are very memorable; I recall a reed cutting task at Pagham when we stopped for lunch and viewing the area we had just cut, saw several Bearded Tits at very close range — true reward for the workers.

Lastly we need to thank all those who have helped with the various projects. Without your assistance we would have got nowhere and our wildlife would be the poorer. Your efforts and support have been greatly appreciated. May they long continue.