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CONTENTS

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Society Surveys:

During 1984 the Society carried out a comprehensive survey of nesting sea-birds (Fulmar, gulls and terns). The organiser was A. J. Prater and the results are summarised on pages 65-71; many thanks go to the observers who are acknowledged in that paper.

National Surveys:

Heronry Census: This long-standing census is now organised in Sussex by Dr. A. B. Watson, 83 Buckingham Road, Shoreham-by-Sea. All known heronries were visited and the observers are shown in the systematic list account.

Ringed Plover Survey: This survey, carried out on behalf of the BTO, documented the numbers of territorial Ringed Plovers. It was organised by A. J. Prater and the results are summarised on pages 72-74; many thanks go to the observers who are acknowledged in that paper.

Wildfowl Counts: The counts in Sussex are organised by D. W. Codd, 12 Broome Close, Horsham, who has made them available to the Society for this Report. Counters and the areas covered were:

Adur Levels, P. J. Clay; Alexandra Park, Hastings, Miss C. A. Taylor; Amberley/Pulborough Brooks, S. W. M. Hughes, C. Walder *et al.*; Arun Valley, D. I. Smith; Ardingly Res., R. N. Argent, G. F. Boniface; Arlington Res., J. Wilsher; Barcombe Mills Res., D. C. Lang; Bewl Bridge Res., P. C. Bance; Burton Ponds, J. M. McKelvie; Chichester GP, F. W. Blake, S. G. Hamilton, Miss C. Swinson; Chichester & Pagham Harbours, see estuary counts; Cuckmere Haven/Seven Sisters, P. J. Luffingham; Darwell Res., R. Harris; Glynde Levels, D. R. Coda; Knepp Lake, Mr. & Mrs. A. Simpson; Pett Level, K. Blackman; Petworth Park, D. Sneller; Pevensey Levels, J. P. McTear *et al.*; Powdermill Res., G. Binns; Rye Harbour, Dr. B. Yates; Swanbourne Lake, D. R. Park; Shillinglee Lake & Lurgashall Mill Pond, Haslemere Nat. Hist. Soc.; Warnham Mill Pond, D. W. Codd; Weir Wood Res., M. Horsfall; WFT Arundel, A. Dawnay.

Estuary Counts: The BTO/RSPB/NCC 'Birds of Estuaries Enquiry' was carried out between September 1984 and March 1985. These counts were organised by A. J. Prater, 4 Church Street, Shoreham-by-Sea, West Sussex. Counters were:

J. Bacon, C. Barwood, R. Batchelor, D. Bates, K. Blackman, I. Blunt, P. F. Bonham, K. F. Burn, A. de Potier, R. D. M. Edgar, Mrs. J. H. M. Edom, F. J. Forbes, B. Haddon, M. P. Hall, S. G. Hamilton, S. P. Hitchings, C. R. Janman, S. Keen, D. Kindersly, L. Lacey-Johnson, O. and P. Laugharne, N. A. G. Lord, R. M. Lord, C. Lowmass, A. Marchant, Mrs. G. Marriott, C. Mayhead, L. Mayhead, J. P. McTear, C. E. Messer, Mrs. M. Millner, K. Noble, D. Okines, D. A. Parmenter, T. W. Parmenter, P. Philpot, A. J. Prater, J. Reaney, R. J. Sandison, M. Shrubb, G. Smith, Miss C. A. Taylor, C. Walker, J. Weston, R. Williamson, P. J. Wilson, B. J. Yates.

Thanks are due to all the above observers and organisers who have contributed to these national surveys in the county.

We are grateful for summaries of detailed observations at Selsey Bill from P. James, Beachy Head from R. D. M. Edgar and R. K. Haggar and Rye Harbour from R. C. Knight and B. Yates, and also to R. Leverton for his continued work in maintaining detailed records of ringing in the county. We must also thank Miss J. V. Stacey and Mrs. M. Millner for their continued and invaluable help in maintaining the Society's files.

The Systematic List was compiled by A. J. Prater with much help from the following, to whom go Tony's grateful thanks: R. D. M. Edgar (marshland birds, inland sawbills); R. J. Fairbank (divers, scarcer migrants); C. J. Fox (sea ducks); S. W. M. Hughes (inland wildfowl, woodpeckers); P. James (skuas, terns, misc. sea-birds); R. Leverton (tits and *Sylvia* warblers); Dr. J. A. Newnham (gulls, Nightingale); K. Noble (wagtails, larks, buntings); R. J. Sandison (owls); M. Shrubb (raptors); P. C. Turner (finches); Dr. A. B. Watson (heron). The list was typed by Mrs. G. Marriott.

CLASSIFIED RECORDS FOR 1984

by A. J. Prater

This list covers all species in Categories A and C of the British Ornithologists' Union check list. Records of birds ringed have not been cross-referenced to the summary of bird-ringing. The sea-watch paper (pages 61-64) and breeding count tables (pages 48-49) should be read in conjunction with the summaries for individual species in the following list. Records of national rarities have only been included if the Society has been formally notified of their acceptance by *British Birds,* at the time of going to press.

The following abbreviations are used in the List as standard practice. E. W. N. S. etc., cardinal points of the compass; GP, gravel pits; LNR, Local Nature Reserve; NR, Nature Reserve; NNR, National Nature Reserve; Res, Reservoir; SSSI, a declared Site of Special Scientific Interest; SF, sewage farm or works; WFT, Wildfowl Trust; Hbr, Harbour; *ha,* hectares; *Km,* kilometres. Amberley is used to cover the whole of Amberley Wild Brooks and Waltham Brooks. The reference to the latest standard account of Sussex birds is abbreviated: Shrubb 1979 (Shrubb, M. 1979, *The birds of Sussex, their present status.* Phillimore, Chichester).

The following species occurred commonly in Sussex during 1984 but the information has not been incorporated into the List:—Pheasant *Phasianus colchicus* and House Sparrow *Passer domesticus.* Details on these species are still required. **ESCAPES:**—The usual range of escapes was recorded. Full details of these are kept in the Society's files. Records are still required and will be summarised periodically in the Newsletter.

NOTE. SWANS, GEESE, DUCKS and WADERS. Readers should remember that the tables presented for all main species have been compiled from the monthly 'Wildfowl Counts' for the Wildfowl Trust and the 'Birds of Estuaries Enquiry' for the British Trust for Ornithology. The counts were made once per month and therefore the tables do not show the peak monthly figure but present a more meaningful co-ordinated count. The 'Wildfowl Counts' were made on 15 Jan., 11 Feb., 11 Mar., 16 Sept., 14 Oct., 18 Nov., 16 Dec. 1984 and 13 Jan., 17 Feb., 17 Mar. 1985. The 'Birds of Estuaries Enquiry' counts were made on 21 Jan., 18 Feb., 17 Mar., 15 Sept., 13 Oct., 10 Nov., 8 Dec. 1984 and 19 Jan., 9 Feb. and 9 Mar. 1985.

1. **RED-THROATED DIVER** *(Gavia stellata):*—Very few were recorded, the approximate monthly totals, including sea passage being as follows:

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
26	13	30	31	6	1	5	—	2	5	7	16

Nearly half the records involved birds flying past Worthing (see diver species). In the early part of the year single birds scattered along the East Sussex coast included 1 at Langney Point from 14 Jan. to 19 Feb., 2 (oiled) at Rye Hbr. on 5 Feb., 1 at Bewl Bridge Res. on 29 Feb. and 1 Mar. and 11 at Pett on 4 Mar.

In June 1 flew E past Worthing on 1st, with 5 W off Pett on 27 July. One was at Pett on 8 Sept. with 3 on 1 Oct. being the maximum seen there subsequently. In Nov. and Dec. only 7 were reported away from Worthing.

2. **BLACK-THROATED DIVER** *(G. arctica):*—As with the previous species a very poor year. In Jan. 2 passed Worthing with 1 at Church Norton on 2nd, 1 passed Worthing in Feb. and 1 was seen off Brighton Marina on 10 Mar. A total of 88 was recorded during the spring passage at the main sites (see diver species) with 9 E at Beachy Head on 29 Apr. and 9 E at Selsey Bill on 30th. One was watched on the R. Adur on 6 Apr. and 1 at Rye Hbr. on 14 May. Only 4 were reported after May, at Brighton Marina on 28 Sept., Langney Point on 1 Oct., Church Norton on 13 Oct. and E past Worthing on 9 Nov.

3. **GREAT NORTHERN DIVER** *(G. immer):*—Five or 6 were recorded during the year, being singles at Selsey Bill on 6 and 15 Jan. (BJ, CMJ, PJ) with possibly the same individual there on 6 Feb. (BJ, CMJ) and in Chichester Hbr. from 9-11 Feb. (CBC). On 3 May 1 flew E past Worthing (RJS) with 1 at Selsey Bill on 19-20 May. One at Church Norton on 10 Nov. and another on the Crumbles GP from 9 Dec. into 1985.

DIVER SPECIES *(Gavia sp.)*:—Few were reported away from regular seawatching sites, the totals at these for Mar. to May being:

	G. stellata	*G. arctica*	*G. immer*	*G. species*
Selsey Bill	10	29	1	57
Worthing	25	20	1	197
Brighton Marina	—	—	—	464
Beachy Head	11	39	—	293

Peak E movements were 234 at Brighton Marina on 23 Mar., 76 at Beachy Head on 24 Mar., 30 at Brighton Marina on 24 Apr. and 30 at Beachy Head on 30 Apr. Monthly movements were recorded as follows:

	Mar.	Apr.	May	June	Total
Selsey Bill	—	—	—	—	97
Worthing	77	84	50	2	243
Brighton Marina	274	116	71	3	464
Beachy Head	94	198	50	1	343
Minimum Total	368	244	103	3	718

Few were seen at the end of the year with 28 W and 5 E at Worthing, but only 3 W at Selsey Bill.

6. **LITTLE GREBE** *(Tachybaptus ruficollis)*:—Monthly maxima at the principal wintering sites were:

	Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	Dec.
Chichester Hbr.	19	24	41	8	18	34	57
Rye Hbr.	16	23	26	42	21	19	30
Lower Cuckmere	22	12	14	1	11	17	13
Pagham Hbr.	16	20	21	7	11	10	19
Weir Wood Res.	—	3	—	15	10	4	6
Widewater	3	2	1	—	3	6	7
Bewl Bridge Res.	6	2	1	—	2	3	3

In addition to the Jan. figures given above, 23 were found at 18 inland waters and 6 on the R. Adur at Shoreham during the extended counts on 14-15 Jan. On 21 Jan. 4 were on the R. Ouse between Southease and Lewes and up to 5 wintered at Brighton Marina, the last being seen there on 21 Mar. There were 4 at Southwick power station on 8 Mar.; the last left Widewater on 13 Mar. and a late bird was off Worthing on 22 Mar.

In the breeding season 7-9 pairs at the Ternery Pit at Rye had poor initial breeding success but *c.*15 were reared from second broods; other pits in the area were not checked thoroughly and may have had a few breeding pairs. A single bird at Brooklands on 3 May was not reported thereafter. Elsewhere, 17 pairs were found at 14 sites and of these 7 pairs were known to have reared 13 young. No breeding information was available for Chichester GP.

At the end of Sept. there were 20 at Chichester GP and there was the usual build-up of numbers at Weir Wood Res., but the numbers at Bewl Bridge Res. were the lowest for several years. The first appeared at Brooklands on 18 Sept. and Widewater on 14 Oct. when there were 3. Additional records at the end of the year were 12 at Jury's Gap, 9 at North Point, Rye, 5 on the Royal Military Canal at Pett, 5 on Chichester Canal near the marina and 5 on R. Ouse at Newhaven.

7. **GREAT CRESTED GREBE** *(Podiceps cristatus)*:—Widely distributed at inland and coastal sites each end of the year; monthly maxima at the principal sites were:

	Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	Dec.
Weir Wood Res.	20	12	42	38	42	37	35
Chichester GP	24	27	—	43	—	—	10
Bewl Bridge Res.	16	17	40	18	26	20	17
Chichester Hbr.	21	8	12	13	1	—	16
Pagham Hbr.	4	1	2	18	18	20	13
Darwell Res.	8	5	6	18	16	11	6
Ardingly Res.				15	11	7	8

Records of special interest included a flock of 13 in flight off West Wittering on 4 Mar. and 10 off Brighton on 19 Mar. More coastal records for Apr. and May than usual; *c.*20 off Midrips/Wicks on 5 May and a similar number in Chichester Hbr. on 23 May. Late records

included 2 off Littlehampton on 30 May and off Worthing on 1 June and a party of 6 off Pett on 18 June.

At Weir Wood Res. a disastrous breeding season with 15-20 pairs rearing only 3 young, nests being deserted before or shortly after laying for no apparent reason. At Bewl Bridge Res. 12 nests built in the reserve but all failed due to fluctuating water levels; however, 1 pair was successful at Dunster Bay. At Ardingly Res. 3 of the 9 pairs present nested and 11 young were seen on 29 July. Counts at Chichester GP were incomplete but 2 pairs were known to have reared 4 young. At Rye 2 pairs reared 3 young and another pair failed. Elsewhere, there were 26 pairs at potential breeding sites and 14 were known to have reared 20 young. At least 6 regular breeding sites were not visited.

At the coast 1 was off Hove on 8 July, 5 off Rye on 9 July and a single off Thorney Island on 17 July. Numbers at Thorney Island built up to 15 on 28 Oct.

8. **RED-NECKED GREBE** *(P. grisegena)*:—A poor year, monthly totals being:

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
4	—	3	—	4	—	—	1	2	4	1	—

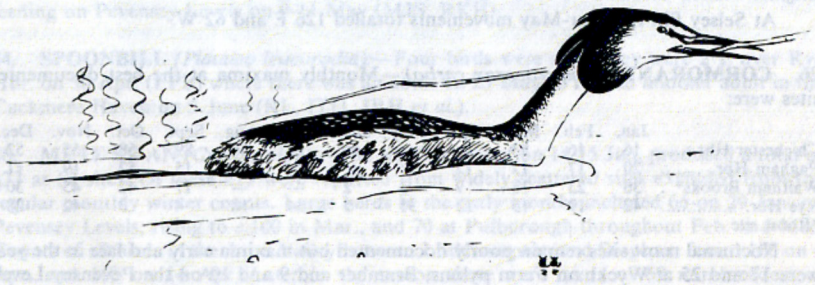
Four were reported from Church Norton in Jan.; in Mar. 1 was seen off Brighton Marina on 20th with 2 off Hove from 14-16th. Once again all autumn records came from Church Norton where 1 was first seen from 27 Aug., with 2 from 22 Sept. to mid-Oct., 4 on 20th and 1 remaining until 24 Nov.

9. **SLAVONIAN GREBE** *(P. auritus)*:—As with the previous species a poor year, monthly totals being:

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
8	6	22	6	—	—	—	—	—	3	21	10

Most records during the first half of the year came from Church Norton with a peak of 16 on 1 Mar., while 3 were in Chichester Hbr. on 3rd and 2 off Widewater on 4th. One was present at Rye Hbr. 12-19 Apr.

One at Rye Hbr. from 20 Oct. to 3 Nov. had a damaged wing. At Church Norton 2 returned on 28 Oct., numbers rising to 20 on 11 and 15 Nov., but only 7 were seen subsequently, dropping to 4 in Dec. Elsewhere in Dec. singles were recorded from Barcombe Res., Langney Point and Rye Hbr. and 2 in Chichester Hbr.



10. **BLACK-NECKED GREBE** *(P. nigricollis):*—Only 10 birds recorded, singles unless stated otherwise as follows: 2 at Pilsey on 7 Jan., Rye Hbr. on 5 Mar., Scotney Court GP from 29 Mar-12 Apr., 2 at Langney Point from 1-15 Apr., Chichester GP on 9 May, Weir Wood Res. from 7-30 Sept., Church Norton on 24 Nov. and Chichester Hbr. on 8 Dec.

12. **FULMAR** *(Fulmarus glacialis):*—For breeding season counts see pages 65-71. Observations at the main seawatching localities were as follows:

	Jan-Feb.		Mar-May		June-July		Aug-Sept.	
Direction of passage	E	W	E	W	E	W	E	W
Selsey Bill	—	—	70	220	—	—	—	—
Worthing	2	—	124	213	6	13	2	10
Brighton Marina	17	—	298	52	84	23	—	—

The peak movement occurred during gale force winds on 22 May when 3 E and 37 W were recorded at Selsey Bill and 10 E and 48 W at Worthing.

A dark morph individual, colloquially called 'Blue Fulmar', was seen at Birling Gap on 19-20 Apr. (RDME, DEL, TWP *et al.*).

15. **CORY'S SHEARWATER** *(Calonectris diomedea):*—One was seen to fly towards Brighton Marina and sit on the water just 250 yards offshore on 3 May (JPS, RA).

17. **SOOTY SHEARWATER** *(Puffinus griseus):*—Singles flew W at Selsey Bill on 9 Sept. (EDL) and Widewater on 24 Oct. (RMS).

18. **MANX SHEARWATER** *(P. puffinus):*—Large numbers were recorded for the second successive spring. Two off Widewater on 24 Mar. and 1 there on 29th were early and in Apr. 2 W off Widewater on 16th and one 1.5 *Km* off Newhaven on the 28th were the only records. May produced a big movement on 22nd (*cf* 2nd in 1983) with 21 E and 11 W at Selsey Bill, 47 W off Church Norton, 91 E and 47 W at Worthing, 36 E and 2 W at Widewater, 80 E and 6 W at Hove and 25 E at Brighton Marina. Prior to this were one off Littlehampton on 6th, 7 E at Brighton Marina on 13-14th and 5 E there on 28th and 2 E on 2 June. On the last date 4 were recorded around a fishing boat off Littlehampton.

In autumn 4 flew W off Worthing on 20 Sept. and 1 E off Brighton Marina on 28 Sept. which was considered to be *P. p. mauretanicus* (NAGL), as was one of the Worthing birds (JAN). A late bird flew W off Worthing on 27 Nov.

25. **GANNET** *(Sula bassana):*—Recorded in every month of the year. Observations at Worthing and Brighton Marina were as follows:

	Jan-Feb.		Mar-May		June-July		Aug-Oct.		Nov-Dec.	
Direction of passage	E	W	E	W	E	W	E	W	E	W
Worthing	36	14	134	104	7	13	34	137	5	15
Brighton Marina	8	5	205	53	119	15	10	5	—	—

At Selsey Bill the Mar-May movements totalled 126 E and 62 W.

26. **CORMORANT** *(Phalacrocorax carbo):*—Monthly maxima at the best documented sites were:

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Chichester Hbr.	16	16	53	nc	nc	nc	nc	36	89	58	55	52
Pagham Hbr.	20	17	12	12	nc	nc	nc	nc	15	52	19	11
Waltham Brooks*	36	23	18	9	3	2	—	—	17	42	45	30+
Rye Hbr.	42	19	13	23	31	5	34	18	4	3	42	28

*Roost site

Nocturnal roost sites remain poorly documented but maxima early and late in the year were 17 and 25 at Wyckham Farm pylons, Bramber and 9 and 10 on the Pevensey Levels pylons. At Chichester GP 23 were on a tree roost on 19 Feb. and a new site at Lee Place, Stopham held 14 on 5 Feb. Pre-roost gatherings on Bognor Pier peaked at 62 on 25 Mar. and 89 on 26 Dec., but 97 flew from there N over Arundel WFT on 17 Nov. on the way to their South Stoke tree roost. Coastal movements off Hove and Brighton Marina peaked at

96 in Nov. and appear to be birds commuting from a roost in the Newhaven area; this roost might be on the cliffs between Newhaven and Peacehaven where 45 were seen on 11 Aug.

Birds feeding on inland reservoirs included maxima of 43 at Ardingly, 27 at Arlington, 8 at Bewl Bridge, 5 at Barcombe, 3 at Weir Wood and 2 at both Darwell and Powdermill. The only substantial flocks seen migrating were 25 E over Beachy Head on 25 Oct. and 22 SE at Hastings on 13 Nov.

27. **SHAG** *(P. aristotelis):*—An exceptional year. The approximate monthly totals were as follows:

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
7	18	12	14	20	14	2	1	6	1	3	3

Once again, the majority of records were received from Brighton Marina with 2 in Jan., 9 in Feb., 5 in Mar. and 3 in Apr. A sub-adult was seen on 12 June and single birds were noted regularly between 21 Oct. and the end of the year. At Newhaven, up to 2 birds were present in Jan-Feb. and there were 5 on 6 May and 7 on 28 Apr. and 13 May.

Inland, single birds were seen at Weir Wood Res. on 25-26 Jan. and at Arlington Res. on 8 Feb. At Bewl Bridge Res., there was 1 on 15 Jan. and 10-12 Feb., and 2 on 2 Mar.

30. **BITTERN** *(Botaurus stellaris):*—Early in the year 7 were noted, at Chichester GP on 2 Jan., Arundel WFT 3-31 Jan., Weir Wood Res. 9-29 Jan., Bewl Bridge Res. on 21 Jan., Ifield Pond on 19 Feb. and 3 Mar., Sidlesham Ferry on 17 Mar. and near Pebsham on 8 Apr. The only record late in the year was at Arundel WFT on 30 Dec.

37. **LITTLE EGRET** *(Egretta garzetta):*—One at Pagham Hbr. on 23 May (JY, CMJ, BJ *et al.*) has been accepted by *British Birds.*

39. **HERON** *(Ardea cinerea):*—All known heronries were counted, and nests certainly and probably occupied totalled 212 (216 in 1983) as follows: Fishbourne 19 (ETR), Pagham 4 (RML), Parham 32 (AI), Henfield 16 (ABW), Firle 29 (ABW), Knepp 14 (A&IS), Eridge 16 (MS-H), Priesthawes 2 (LG), Westham 2 (LG), Wartling two heronries 7 and 6 (LG), Pevensey 2 (LG), Pett Level 2 (KJB), Leasam 60 (CFG, EMC, HARC), Bewl Bridge area 1 (PCB).

The largest counts otherwise were 24 Thorney in Aug., 35 Chichester Hbr. in Oct., 35 Rye Oct-Nov.; 15 were seen fishing together at Hammer Trout Farm in Apr.

40. **PURPLE HERON** *(A. purpurea):*—One flew E past Brighton Marina on 7 May (JPS, PB).

42. **WHITE STORK** *(Ciconia ciconia):*—A good spring with 4 sightings probably involving 3 birds. The first was at Newhaven Tidemills on 25 Apr. (PRS), followed by 2 sightings on 1 May at Sidlesham Ferry (RML) and 2½ hours later at Sompting (DHL). One spotted in car headlights while roosting in the Wartling heronry was subsequently seen feeding on Pevensey Levels on 9-11 May (MJS, RKH).

44. **SPOONBILL** *(Platalea leucorodia):*—Four birds were seen; they were 2 E over Rye Hbr. on 30 Apr. (PFB) where there was an adult on 23 May (BY), and another adult in the Cuckmere Haven on 3 June (RL, ITD, JRH *et al.*).

46. **MUTE SWAN** *(Cygnus olor):*—The wildfowl count on 14-15 Jan. produced a total of 473 at 52 sites. Of these 275 were reported from widely scattered sites excluded from the regular monthly winter counts. Large herds in the early months included 66 on 29 Jan. on Pevensey Levels, rising to *c.*100 in Mar., and 70 at Pulborough throughout Feb. and Mar. Counts of all birds in the Arun Valley between Littlehampton and Stopham found 160 on 4 Apr. and 168 on 14 Apr. Later in the season there were herds of 69 non-breeders at Greatham Bridge in May and 57 on the Lewes Levels in mid-June.

In the breeding season, of 30 pairs known to have nested 3 failed and 27 reared 96 young. Post breeding counts included 29 at the Crumbles on 30 July, 46 at Pett Level and 19 at Bewl Bridge Res. on 16 Sept. and 29 at Chichester GP on 16 Oct. At Thorney Deeps 88

were present on 21 Sept. and numbers remained at this level on Chichester Hbr. for the rest of the year. Elsewhere, counts at the end of the year included 101 at Rye on 13 Oct., 165 between Ford and Pulborough on 29 Nov. (including a single herd of 81 at Amberley) and 17 at Widewater which were partly sustained by daily feeds of grain and cake.

47. **BEWICK'S SWAN** *(C. columbianus):*—Four in Lewes Brooks at the end of 1983 increased to 6 on 15 Jan., but of the 11 at Chichester GP only 2 remained on 2 Jan. Three parties totalling 180, presumably part of the Romney Marsh flock, flew E over Rye on 18 Jan. and 30 made a brief visit to Arlington Res. on 21 Jan. On 1 Feb. 3 flew S over Cuckfield. On 5 Jan. 15 circling over West Chiltington had probably come from the Arun Valley where 65 (including 16 immatures) were present throughout Jan. and much of Feb. Some were also present to the south of Amberley, both groups roosting at Waltham Brooks where numbers in Jan. and Feb. totalled 107 and 103 respectively. Numbers increased to 132 on 2 Mar. and the last count for the Arun Valley was 49 at Amberley on 18 Mar. The last record was from Waltham Brooks on 20 Mar.

In the autumn, first recorded on 27 Oct. when 1 flew out to sea at the Midrips and there was 1 at Amberley. First seen at Waltham Brooks on 2 Nov. and numbers built up slowly to 52 on 29 Nov. (including 7 immatures). A count of the Arun Valley on 15 Dec. produced 108, of which 83 subsequently roosted at Waltham Brooks. Elsewhere there was a family party of 5 at Chichester GP on 17 Nov.

50. **PINK-FOOTED GOOSE** *(Anser brachyrhynchus):*—The escape at Bewl Bridge Res. again remained throughout the year.

51. **WHITE-FRONTED GOOSE** *(A. albifrons):*—Very few were noted. There were 26 at West Chidham on 21 Jan. and 13 remained in the Waltham Brooks area from late Jan. to 3 Apr. At Arlington Res. 2-3 were seen from 21 Jan. to 26 Feb. During the nights of 9-10 Apr. birds were heard passing over Lancing (at 22.30 hrs.) and Findon Valley (at 23.00 hrs.) respectively. Late in the year the only record was of 2 at Weir Wood Res. on 21 Oct.

53. **GREYLAG GOOSE** *(A. anser):*— The only flock present throughout the year was based on Waltham Brooks where the monthly maxima were:

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
19	18	16	8	5	16	5	11	16	17	17	34

Elsewhere the main groups were at Weir Wood Res., where there were 23 in Jan. and 22 in Nov/Dec., and at Scotney Court GP where the maximum was 48 in Sept. Scattered individuals were seen elsewhere and very few were observed passing E at sea during Apr. and May. Breeding was successful at Scotney Court GP where at least 8 *pulli* were reared but the only known nest at Waltham Brooks was trampled by cattle during incubation.

54. **SNOW GOOSE** *(A. caerulescens):*—A flock of 3 adults and 4 immature white-phase birds flying in from the sea at Ferring and heading NNE inland on 2 Mar. may have had an interesting origin. One at Weir Wood Res. on 24 Sept. and single blue-phase individuals near Arundel WFT on 5-18 Mar., and paired with a Barnacle Goose at Barcombe Res. from late Sept. to 29 Dec. were clearly escapes.

55. **CANADA GOOSE** *(Branta canadensis):*—Monthly maxima at the principal autumn and winter sites are tabulated below. Numbers in the Arun Valley exceeded 1,000 for the first time, peaking at 1,073 at Waltham Brooks on 14 Nov. At Bewl Bridge Res., 1,158 on 20 Sept. was the largest flock recorded in Sussex to date.

	Jan.	Feb.	Aug.	Sept.	Oct.	Nov.	Dec.
Arun Valley	600	400	160	300	1050	1073	1000+
Bewl Bridge Res.	150	120	850	1158	270	330	300
Arlington Res.	350	160	850	30	350	200	151
Barcombe Res.	223	163	—	180	53	280	293
Rye Hbr.	66	82	152	209	140	110	73
Weir Wood Res.	180	112	154	208	140	217	4

In the Jan. wildfowl count 1,859 geese were reported from 22 sites. Records received of

large flocks at other sites included 550 and 517 at Petworth Park on 16 Dec. and 15 Oct. respectively, 310 at Lurgashall on 16 Sept., 220 at Scotney Court GP on 28 Sept., 146 at Darwell Res. on 18 Nov., 130 at Stedham sand pit on 19 Sept. and 101 at Chichester GP on 21 Sept.

Numbers of young reared at the main breeding sites were: Petworth Park 72 (no. of broods not known), Rye 28 (5 broods) and 1 pair failed, Bewl Bridge Res. 12 (3 broods) and 3 pairs failed, Chichester GP 21 (5 broods) and Weir Wood 26 (5 broods). Elsewhere 30 pairs nested at 21 sites and of these 26 pairs were known to have reared 108 young and 2 pairs failed.

A small bird showing the characteristics of the small race *B. c. minima* at Pett on 10 May and at Barcombe Res. on several dates in Nov. and Dec. was presumably an escape.

56. **BARNACLE GOOSE** *(B. leucopsis):*—The origin of 6 on 18 Mar. and 10 on 21-29 Mar. at Rye Hbr. is uncertain. However, presumably feral birds continue to increase with 7 early in the year and up to 10 late in the year at Barcombe Res./Plashett Park. Other peaks included 4 at Arundel and Bewl Bridge Res., 3 at Cuckmere Haven, and 2 at Waltham Brooks and in Chichester Hbr.

57. **BRENT GOOSE** *(B. bernicla):*—The estuary counts were:

	1984 Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	*1984* Dec.	*1985* Jan.	Feb.	Mar.
County totals	*16827*	*13017*	*7690*	*166*	*810+*	*6207*	*9442*	*12961*	*12365*	*6956*
Chichester Hbr.	11849	8707	6308	21	778	5669	8465	6669	8859	6565
Pagham Hbr.	2477	2010	382	145	1+	537	882	4219	1500	191
Bracklesham Bay	2500	2300	1000	—	—	—	91	2000	2000	200

The 1984 breeding season was the third unsuccessful one in a row with subsequent winter flocks containing less than 5% young. As a result there was a substantial fall in numbers wintering in the county and many fewer fed inland on winter cereals and grassland, although the flock using the Thorney Island Sanctuary reached record levels of 3,500.

Spring passage E along the coast involved a minimum of 10,724, the highest total yet. Totals were 9,905 at Brighton Marina, 5,223 at Worthing but merely 814 at Selsey Bill. The main movement was on 20-24 Mar. when 5,699, over half of the total, passed the Marina. Inland observations continue to increase with most sightings being made at or within an hour of dusk. Apart from one small flock on 30 Jan. the other 5 sightings were between 24 Mar. and 17 Apr. One injured bird summered in Pagham Hbr. and 15 in Chichester Hbr. The return movement started early, no doubt due to breeding failure, with 1 W at Selsey Bill on 12 Sept. and an influx on 16 Sept. when birds were seen at Southwick, Pett Level and Weir Wood Res. and a further 30 appeared in Chichester Hbr. Relatively small numbers moved W along the coast, the peak being 1,192 at Worthing on 9 Nov. Inland there was a further 25 at Weir Wood Res. on 14 Oct. and the main movement was 4-19 Nov. when totals of 459 passed Bewl Bridge Res., 46 at Weir Wood Res., 200 at Arundel WFT, and 17 at Arlington Res.; 200 passed over Hurst Green on 12 Dec.

Pale-bellied birds of the race *hrota* were singles at Pagham Hbr. from 8 Jan. to 27 Mar. (with 2 on 19 Feb.) and at Chichester Hbr. and R. Adur on 26 Mar. One passed W at Worthing on 19 Nov.

Cat. C. **EGYPTIAN GOOSE** *(Alopochen aegyptiacus):*—Unusually 3 were on fields at Pagham Hbr. on 9 Feb. and a single was there on 10-11 Mar. This may have been the male which was at Arundel WFT all year but visited Waltham Brooks between 14 and 22 June. One was at Weir Wood Res. until 17 Mar.

61. **SHELDUCK** *(Tadorna tadorna):*—The estuary counts were:

	1984 Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	*1984* Dec.	*1985* Jan.	Feb.	Mar.
County totals	*2859*	*3014*	*2274*	*49*	*130*	*657*	*1782*	*3313*	*3879*	*3239*
Chichester Hbr.	2356	2571	1871	35	69	489	1186	2391	3126	2555
Pagham Hbr.	437	374	332	8	61	162	586	691	613	452
Rye Hbr.	41	29	36	6	—	4	2	157	94	169
Newhaven	2	4	2	—	—	—	2	66	30	21

A typical showing early in the year. During the period Mar-May peaks at other sites included 35 at Chichester GP, 27 at Cuckmere Haven and the Midrips, 20 at Arundel WFT, 18 at Waltham Brooks and 15 on the Adur. The spring coastal movements were as confusing as ever, *e.g.* 269 E and 187 W at Worthing and 188 E and 56 W at Brighton Marina; movements took place until 11 June.

Breeding season reports indicated relatively poor success. On the coast there were only 3 broods totalling 21 *pulli* at West Chidham/Thorney Channel, 48 *pulli* on Northpoint GP, 20 juveniles at Rye Hbr. and 86 juveniles at Pagham Hbr. A pair which hatched 6 young at Newhaven Tidemills lost them all. Inland 3 successful pairs at Chichester GP reared 10 young but 5 pairs in the Amberley complex appeared to be unsuccessful. One of several pairs at Arundel WFT raised 12 young.

The return of adults from their moulting grounds off the German coast was very late with only a scattering of birds present until mid-Nov. Numbers at all sites remained very low except in Dec. at Pagham Hbr.

63. **MANDARIN** *(Aix galericulata)*:—In the Jan. wildfowl count 57 were reported from 7 sites, including 14 at Swanbourne Lake and 9 at Eridge Park; surprisingly only 1 was found in the St. Leonards Forest area.

In the breeding season a pair nested in a nest box at Blackdown, 2 pairs bred at Swanbourne but only 6 young fledged, 1 pair reared 7 young at Weir Wood Res. and breeding was reported for the first time from Parham Park (3 young). Elsewhere 12 pairs were present at 11 sites from which the species has been reported in previous years. On 23 July there were *c.*20 at Swanbourne Lake and at the end of the year the numbers there peaked at 26 on 29 Dec.

64. **WIGEON** *(Anas penelope)*:—The monthly wildfowl and other counts at the principal localities were:

	1984 Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	*1984* Dec.	*1985* Jan.	Feb.	Mar.
County totals	*2527*	*3203*	*1243*	*264*	*418*	*1367*	*1975*	*13964*	*4235*	*579*
Pagham Hbr.	117	22	14	17	12	17	149	3447	684	15
Arlington Res.	0	530	30	3	0	270	300	3200	430	0
Rye Hbr.	0	0	0	92	11	23	4	2000	391	5
Chichester Hbr.	563	925	182	14	245	627	671	1687	466	217
Amberley	1000	1000	600	7	54	167	500	200	500	117
Cuckmere Valley ...	40	200	62	9	22	80	130	800	334	34
Bewl Bridge Res. ...	123	133	93	4	33	98	93	720	420	115
Glynde Levels	550	235	160							

The Jan. wildfowl count total was greater than that in Jan. 1983 but still well below average. None was found at any of the 152 additional sites visited on 14-15 Jan. Other counts included 215 at Bewl Bridge Res. on 22 Jan., 300 at Arlington Res. on 22 Jan. and 1,000 there on 11 Feb., 180 in the lower Cuckmere on 26 Jan. and 200 there on 17 Mar., and 249 at Glynde Levels on 11 Mar. Lesser numbers were reported from several regular sites. The aberrant duck seen at Waltham Brooks in 1983 was last seen there on 25 Feb.

At the coast, on 12 Mar., 277 flew E (6¾ hrs.) at Worthing and 318 E (8 hrs.) at Brighton. During the breeding season a pair reared 2 young at Swanbourne Lake, a single drake was present at Weir Wood Res. on 23-24 May, a pair present at Waltham Brooks from 6-28 May was seen mating on the latter date but not seen thereafter. At Rye 1-2 drakes summered but no female was seen after Apr.

By the end of Aug. numbers at Rye had increased to 16, increasing to 69 on 16 Sept. Elsewhere a female was at Bewl Bridge Res. on 13 Aug. and there were 4 there and 1 at Combe Haven on 16 Sept. In the west 8 arrived on Thorney Deeps on 1 Sept. and the first party of 5-7 arrived at Waltham Brooks on 22 Sept.

67. **GADWALL** *(A. strepera)*:—The monthly wildfowl and other counts at the principal localities are shown on p.13.

The Jan. wildfowl count total was the lowest for 3 years but was nevertheless just above average. An additional 7 birds were found at 1 other site during the extra counts 14-15 Jan. Other records for the early months included 13 on Thorney Deeps on 12 Feb., 12 at the

Crumbles on 5 Feb., 12 at Waltham Brooks for much of Jan. and Feb., 14 at Chichester GP on 14 Jan. and 68 at Swanbourne on 3 Mar. Reports of smaller numbers were also received from Burton Pond, Lurgashall, Petworth Park, Adur Levels, Arlington Res., Wadhurst Park, Combe Haven, Powdermill Res., Darwell Res. and Rye.

	1984 Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	*1984* Dec.	*1985* Jan.	Feb.	Mar.
County totals	*143*	*162*	*104*	*81*	*76*	*108*	*111*	*214*	*182*	*53*
Swanbourne Lake .	34	79	48	3	0	19	20	107	93	2
Arundel WFT	51	46	35	59	47	23	41	31	57	37
Bewl Bridge Res. ...	27	8	2	2	12	33	30	48	20	1

During the breeding season reported from the Severals, Weir Wood Res., Waltham Brooks and Rye but there was no evidence of breeding at any of these sites. Breeding did take place at Swanbourne Lake, but the number of pairs and success were not known.

At the end of the year counts included 16 on Pevensey Levels in Nov., 12 at Waltham Brooks in Nov. and Dec., 40+ at Rackham on 2 Dec., 14 at Thorney Deeps on 9 Dec., 53 at Bewl Bridge Res. on 30 Dec. and 118 at Swanbourne on 29 Dec. Smaller numbers were also reported from Dell Quay, Chichester GP, Burton Pond, Lurgashall, Petworth Park, Shoreham, Weir Wood Res., Crumbles GP, Lower Cuckmere, Arlington Res. and Rye.

69. **TEAL** *(A. crecca)*:—The monthly wildfowl and other counts at the principal localities were:

	1984 Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	*1984* Dec.	*1985* Jan.	Feb.	Mar.
County totals	*2754*	*3053*	*1563*	*1651*	*1131*	*2687*	*3170*	*1903*	*1684*	*852*
Chichester Hbr.	958	1219	667	1070	428	1936	1330	1100	1009	564
Pagham Hbr.	173	98	137	49	155	138	780	287	139	60
Amberley	800	100	500	53	109	200	500	25	70	71
Glynde Levels	320	120	35							

The Jan. wildfowl count total was below average and the lowest for 4 years. An additional 336 were found at 14 of the 152 extra sites visited on 14-15 Jan. Other counts reported included 200+ at Combe Haven on 28 Jan., 177 at Arundel WFT on 31 Jan. and 128 in the Lower Cuckmere on 16th Feb.

In the breeding season there was a pair at Chichester GP on 18 May, a drake at Chingford Pond on 28 May, a pair at Ferring on 10 June and up to 3 pairs throughout May-June at Waltham Brooks. At Rye absent in May but a pair was present from 15 June. A pair bred successfully at another site in East Sussex.

At the end of the year counts included 138 at Darwell Res. on 16 Sept., 237 at Sidlesham on 18 Nov., *c.*250 at Combe Haven in Dec. and *c.*400 at Arundel WFT on 13 Dec.

70. **MALLARD** *(A. platyrhynchos)*:—The monthly wildfowl and other counts at the principal localities were:

	1984 Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	*1984* Dec.	*1985* Jan.	Feb.	Mar.
County totals	*3043*	*2617*	*1374*	*3542*	*2778*	*3755*	*2560*	*4920*	*4396*	*1509*
Arlington Res.	310	310	20	30	75	350	300	1000	650	40
Arundel WFT	240	318	217	517	305	450	725	265	372	278
Bewl Bridge Res. ...	233	177	112	653	407	472	549	700	500	156
Chichester Hbr.	309	355	241	182	336	405	479	534	378	117
Rye Hbr.	240	191	66	239	102	222	278	407	176	66
Pagham Hbr.	179	155	106	242	402	334	285	361	177	166
Darwell Res.	258	192	38	121	54	274	230	—	96	30

The Jan. wildfowl count total was the lowest for many years. An additional 2,203 were found at 81 of the 152 extra sites visited on 14-15 Jan. and included counts of 253 at Hampden Park and an additional 207 on the levels at Willingdon and Hampden.

Breeding season population estimates included *c.*50 pairs on the SSSI at Rye and *c.*20 pairs at Weir Wood Res., where 100+ young were raised from 25-30 broods. At Arundel WFT an early brood of 7 was seen on 24 Feb. and a late brood of 9 on 26 Oct. Another late brood of half grown young was seen on 10 Nov. at Jury's Gap. At Sidlesham a duck was found sitting on eggs in an old Magpie's nest 15-20 feet above ground level. At the end of the

year large gatherings *c.*275 at Weir Wood Res. on 22 Sept., 260 at Angmering Decoy pond on 17 Sept., *c.*250 at Barcombe Res. on 2 Dec. and 651 at Bewl Bridge Res. on 30 Dec.

72. **PINTAIL** *(A. acuta)*:—The monthly wildfowl and other counts at the principal localities were:

	1984						*1984*	*1985*		
	Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
County totals	*137*	*422*	*316*	*2*	*5*	*120*	*376*	*421*	*230*	*113*
Pagham Hbr.	74	256	214	—	1	15	241	294	120	13
Chichester Hbr.	11	70	67	1	2	89	70	99	84	84
Amberley	52	88	32	—	2	14	62	12	1	16

The Jan. wildfowl count total was the lowest for many years and none was found at any of the additional sites visited on 14-15 Jan. However, numbers in Feb. had returned to above average. Other counts received for the beginning of the year included 187 at Chichester Hbr. on 7 Jan. and 150 there on 18 Mar. Records, all of less than 10, were also received from Horse Eye Level, Weir Wood Res., Knepp and Rye Hbr.

Spring and summer records were of females at Sidlesham on 7 and 14 May and single drakes on 23 June and 5-8 July, a pair at Washington sandpit on 21 Apr. and 5 May, a pair at Barcombe Mills from 13-16 May, single drakes at Rye on 17-18 May, a drake at Waltham Brooks on 21 Apr. and 26 May and a single duck at Combe Haven on 31 May.

One returned to Waltham Brooks on 11 Aug., there were 3 at Weir Wood Res. on 16 Aug. and 6 at Thorney Island on 1 Sept. At the end of the year other counts included *c.*50 at Waltham Brooks on 29 Nov., 62 there on 30 Dec. and 380+ in Pagham Hbr. on 22 Dec. Small numbers were also reported from Barcombe Res., Combe Haven, Rye and Bewl Bridge Res.

73. **GARGANEY** *(A. querquedula)*:—An early pair was on Pevensey Levels on 29 Feb. No records thereafter until a drake at Waltham Brooks on 31 Mar., a pair on the Adur Levels on 3 Apr. and a drake at Combe Haven on 4 Apr. Additional Apr. records were received from Sidlesham and Rye with others flying E past Widewater and Beachy Head.

In the breeding season single pairs were present at Rye and Waltham Brooks until June but there was no evidence of breeding. Single drakes were present at Arundel WFT on 7-8 May and at Barcombe Res. on 16 May.

Fewer autumn records were received than in 1983. At Pett Pools 2 stayed from 29 July to 3 Aug and 1 visited the Midrips on 1 Aug. At Rye singles were seen on 3 dates in July, 1-5 throughout Aug., 2-3 in early Sept. and singles on 21 and 24 Sept. The last was 1 at Weir Wood Res. on 22 Sept. until 23 Oct.

75. **SHOVELER** *(A. clypeata)*:—The monthly wildfowl and other counts at the principal localities were:

	1984						*1984*	*1985*		
	Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
County totals	*220*	*255*	*200*	*95*	*185*	*167*	*229*	*91*	*52*	*63*
Amberley	121	129	58	7	38	41	48	4	—	8
Rye Hbr.	10	33	16	46	89	35	13	7	1	5
Arundel WFT	23	21	37	34	31	25	47	15	20	14
Chichester Hbr.	—	8	44	—	5	—	—	9	—	10
Petworth Park	2	3	20	—	—	19	38	—	—	17
Arlington Res.	37	20	3	—	—	30	20	10	—	—
Chichester GP	nc	nc	nc	8	nc	nc	nc	20*	26*	1

*Incomplete

The Jan. wildfowl count was the lowest for many years. Only 5 were found at 2 of the 152 extra sites visited on 14-15 Jan. An additional *c.*40 were present at Combe Haven in the early months. Spring passage included 26 E at Selsey between 1 Apr. and 7 May; 38 E and 5 W at Worthing between 8 Mar. and 29 Apr.; 40 E at Brighton Marina between 12 Mar. and 19 Apr. and 30 E at Beachy Head in Apr. with a maximum of 14 on 29 Apr.

Two pairs bred successfully at Rye and a pair lost their clutch at Sidlesham during hay-making. Otherwise summering birds at Rye, Sidlesham, Waltham Brooks, Bewl Bridge Res. and Chichester GP were not known to breed and were predominantly males.

At Rye there were 20 on 2 Aug. and numbers increased rapidly to 40 on 6 Aug. and 60 on 11 Aug. but elsewhere not reported until 28 Aug. when 1 at Waltham Brooks and 8 at

Chichester GP. Counts at the end of the year included 68 at Combe Haven on 23 Dec., 40 at the Midrips on 22 Dec. and 55 at Pett Pools on 16 Dec.

76. **RED-CRESTED POCHARD** *(Netta rufina)*:—A rash of gaudy males throughout the year makes it unlikely that many are of wild origin. One was in the Pett/Rye area 5 Feb. to 27 May and again 2-10 July. Probably 1 individual was on the Crumbles 8-22 Jan., Wakehurst Place 16 Feb., Barcombe Res. 13-25 May and Pevensey Levels on 4 June. Another stayed at Slaugham Furnace Pond for most of the year. In the west, a male irregularly at Waltham Brooks 31 Mar. to 14 May could have been that with a female at Chichester GP on 13-18 May, where there were two females or immatures on 6-13 Oct.

77. **POCHARD** *(Aythya ferina)*:—The monthly wildfowl and other counts at the principal localities were:

	1984						*1984*	*1985*		
	Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
County totals	*790*	*666*	*383*	*329*	*440*	*524*	*951*	*617*	*765*	*409*
Rye Hbr.	96	116	99	1	14	210	385	107	204	102
Arundel WFT	213	295	221	38	81	144	227	149	309	167
Chichester GP	148*	79*	7*	265	—	—	202*	103*	96*	88*
Pevensey Levels	140	50	15	—	—	—	47	—	—	—
Bewl Bridge Res. ...	25	4	5	6	4	48	11	138	42	3
Weir Wood Res. ...	68	75	25	8	12	75	60	—	33	25

*Incomplete

The Jan. wildfowl count was the lowest recorded for several years. An additional 46 were found at 9 of the 152 extra sites visited on 14-15 Jan., these comprising 25 at Forest Mere and 21 distributed over 8 small waters in the high weald.

In spring there was a very unusual sea passage on 12 Mar. when 270 flew E at Worthing in 15 flocks of 6-34. In the breeding season 2 drakes were at Sidlesham from 31 May to 3 June; single drakes were at Weir Wood Res. on 13 May and 24 June and at Ifield on 9 June. At Rye 2-5 drakes and 1-2 ducks were present in May and June and at Swanbourne Lake a pair in May, but there was no evidence of breeding at either site. At Bewl Bridge a pair was believed to have bred on a raft for the third successive year without success. At Chichester GP 6 drakes and 2 ducks were seen on 14 June and a duck with 4 young on 22 June; on 14 July there were 17 present and numbers gradually built up to 45 on 28 July and 60 on 18 Aug.

At the end of the year other counts included 34 at Petworth Park on 17 Dec. and 291 at Chichester GP on 2 Dec.

80. **TUFTED DUCK** *(A. fuligula)*:—The monthly wildfowl and other counts at the principal localities were:

	1984						*1984*	*1985*		
	Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
County totals	*766*	*774*	*514*	*580*	*337*	*555*	*808*	*979*	*1184*	*863*
Arundel WFT	261	179	110	152	101	196	278	199	254	152
Chichester GP	22*	15*	25*	229	—	—	221*	125*	244*	193*
Swanbourne Lake .	23	142	32	—	—	1	3	35	150	55
Pevensey/Crumbles	120	78	37	22	56	60	50	80	35	30
Chichester Hbr.	—	3	—	—	—	1	11	116	52	56
Rye Hbr.	117	78	62	28	54	118	61	60	72	52
Weir Wood Res. ...	45	55	75	12	9	24	28	0	113	100
Bewl Bridge Res. ...	60	46	59	37	37	49	39	100	41	51
Barcombe Res.	19	38	—	4	9	26	31	69	99	28
Burton Ponds	29	58	51	20	42	21	29	38	44	45

*Incomplete

The Jan. wildfowl count total was the lowest recorded for several years. An additional 263 were found at 23 of 152 extra sites visited on 14-15 Jan. Other counts included a maximum of 32 at Waltham Brooks in Jan. and *c.*100 at Swanbourne on 23 Mar.

During the breeding season young were reported as follows: Chichester GP 50 (10 broods), including a duck with well grown young on 10 Sept.; Rye 43 reduced to 15 (6 broods); Swanbourne Lake 15 (2 broods); Gravetye 15 (2 broods); Weir Wood Res. 12 (3 broods); Darwell Res. 11 (2 broods); Boyles Farm 6 (1 brood); Arundel 5 (1 brood) and

Forest Mere 5 (1 brood). At Bewl Bridge Res. 3 pairs nested on rafts and at Arundel WFT a duck was seen with 21 ducklings. Other counts at the end of the year included 56 at Powdermill Res. on 17 Sept., 88 at the Crumbles GP on 15 Oct. and 128 there on 6 Dec., and 80 at Barcombe Res. on 20 Dec.

81. **SCAUP** *(A. marina)*:—Approximate monthly maxima were:

Jan.	Feb.	Mar.	Apr.	May	Nov.	Dec.
17	9	8	6	3	4	7

The May record refers to 3 E at Beachy Head on the 5th. A remarkable record (excluded from the table) was of a female that hatched 3 young (which later died) at Arundel WFT. The observer wisely reported the "origin of female suspicious!"

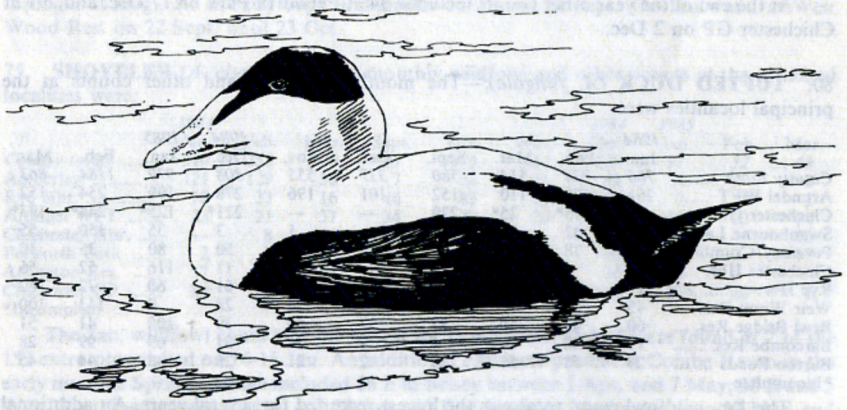
82. **EIDER** *(Somateria mollissima)*:—Approximate monthly totals were as follows:

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
169	32	215	130	152	30	32	29	36	40	6	45

The regular winter flock at Selsey Bill numbered 100 on 1 Jan. and 200 on 26 Mar. Elsewhere there were 17 in Chichester Hbr. and 23 at Pett on 7 Jan. and 34 in Pagham Hbr. on 8 Jan.

The Selsey flock dispersed during spring to leave 23 on 23 May and spring coastal movements were greater than 1983 with 410 E and 21 W noted at Worthing, 274 E at Brighton Marina and 172 E from Beachy Head. The peak movement of 137 E at Worthing occurred on the late date of 31 May. Summering birds were noted from Church Norton, Widewater and Rye Hbr. and involved approximately 24 individuals.

Only small numbers were seen in autumn, the most noteworthy being 19 at Selsey Bill on 16 Aug., 35 E at Littlehampton on 27 Oct. and 24 W at Worthing on 3 Dec. By the end of the year 25 had gathered off Climping.



86. **LONG-TAILED DUCK** *(Clangula hyemalis)*:—A pair at the Crumbles between 1 Jan. and 8 Apr. and singles at Rye on 2 Jan., 28 Jan. and 12 Feb.; 3 in the western harbours between 17 and 25 Mar., 2 of which remained in Chichester Hbr. until 15 Apr.; 2 at Southwick between 16 and 20 Apr., 2 W at Selsey Bill on 18 Apr., 2 E at Brighton Marina on 19 Apr. and finally 2 E at Brighton on the late date of 16 May.

All the autumn records were in Nov.; 1 W at Worthing on 2 Nov., a pair on Parham Pond on 7 Nov. and singles noted in both Chichester and Pagham Hbrs. during mid-Nov.

87. **COMMON SCOTER** *(Melanitta nigra)*:—The largest winter flock was, as usual, off Pett where 200 were noted on 7 Jan. At Widewater the count of 40 on 23 Jan. had increased to 54 by 25 Feb.

Spring passage was recorded well into June and each of the regularly watched stations recorded more than 1983, with 2,532 noted at Selsey Bill, 3,184 at Worthing, 5,006 at Beachy Head and 5,548 at Brighton Marina. The peak day was 1 May with 692 at Beachy Head. A detailed analysis of the daily log from each of these sites suggest minimum E movement to be:

Mar.	Apr.	May	June	Total
1611	3326	2791	562	8290

Inland records were of 2 at Arlington Res. on 7 Apr. and 2 at Weir Wood Res. on 10 Apr.

Few were noted during the summer and autumn movements were small, the most noteworthy being 1 at Weir Wood Res. on 28 July, 41 E at Brighton Marina during July and 11 at Pett on 12 Aug. Only 19 were offshore at Pett by Dec. but over 100 were seen offshore at the Cuckmere Haven on 21 Dec.

89. **VELVET SCOTER** *(M. fusca)*:—Records are summarised in the following table of approximate monthly totals:

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
12	12	36	136	153	—	—	2	—	3	1	1

A wintering flock off Widewater increased from 5 on 12 Jan. to 12 by 26 Feb. and remained until 10 Mar. The only other winter record was 3 at Rye on 8 Jan. The table reveals a notable E spring passage, observed from all the main coastal watching points between 2 Mar. and 25 May. Totals were: Selsey Bill, 96; Worthing, 75; Brighton Marina, 117; Beachy Head, 172. A minimum of 313 flew E. The peak movement was on 1 May with 39 at Selsey Bill, 22 at Worthing, 25 at Brighton Marina and 64 from Beachy Head.

At Worthing 2 W on 2 Aug. was an early return but more typical was 3 W in late Oct. Singles noted at Selsey Bill on 16 Nov. and offshore at Pett on 31 Dec. were the only other records.

91. **GOLDENEYE** *(Bucephala clangula)*:—The Jan. and Feb. coastal counts revealed 30 and 47 respectively with, as usual, the majority in Chichester Hbr. The maximum counts at inland sites were 4 at Bewl Bridge Res. on 12 Feb., 3 at Chichester GP on 11 Mar., 9 at Weir Wood Res. on 19 Mar. and 4 at Barcombe Res. on 2 Apr. One remained at Barcombe until 17 Apr. but the last was 1 E at Hove on 23 May.

The first autumn birds were a single at Weir Wood Res. on 21 Oct. followed by 3 W at Worthing on 17 Nov., and by 18 Nov. 10 were at Dell Quay. The numbers recorded in Dec. were lower than 1983; the estuary count producing only 15 with inland records of 3 at both Bewl Bridge Res. and Weir Wood Res.

93. **SMEW** *(Mergus albellus)*:—**1983**:—Two females were at Forest Mere on 14 Nov.

1984:—Mild weather at either end of the year produced few records. The redhead at Pagham Lagoon remained from 1983 until 5 Feb. A male was at the mouth of Pagham Hbr. on 3 Jan. At Rye Hbr. there were 3 redheads on 5 Jan. and 1 on 31st; 1 redhead at Weir Wood Res. on 28 Feb.

A redhead (the same one as in Jan.?) appeared at Pagham Lagoon on 15 and 27 Dec. when 1 was also at Rye Hbr. On the 31st a male graced Arundel WFT.

94. **RED-BREASTED MERGANSER** *(M. serrator):*— The estuary counts in Jan., Feb. and Mar. were 72, 54 and 66 respectively. These were similar to the figures for 1983 and, as usual, the majority were noted in Chichester Hbr. where the maximum was 87 on 7 Jan. Wintering flocks were also regularly recorded off the West Sussex coast with maxima of 36 off West Worthing on 6 Mar. and 32 at Widewater on 18 Mar.

The spring passage was similar to the past three years with 194 E at Selsey Bill, 393 E at Worthing, 260 E at Brighton Marina and 223 E at Beachy Head. A late party of 9 E at Selsey Bill and 10 W at Worthing on 2 June were noteworthy and the last was seen at Pagham on 12 June. A pair at Bewl Bridge Res. on 24 May was the only inland record.

Recorded in small numbers at Worthing after 25 Sept. but the wintering population was slow to return as revealed by the Nov. estuary count of only 34 (130 in 1983). However, by the Dec. count the number had risen to 130.

95. **GOOSANDER** *(M. merganser):*—Records were received from 10 sites. Monthly totals were:

Jan.	Feb.	Mar.	Apr.	May	Nov.	Dec.
2	1	2	3	1	5	4

The above include a pair displaying at Bewl Bridge Res. on 18 Mar. and a redhead E off Hove on 15 May.

Cat. C. **RUDDY DUCK** *(Oxyura jamaicensis):*—Present throughout the year at Chichester GP and Arundel WFT. At Chichester the monthly maxima were:

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
19	19	2	5	5	6	4	9	10	9	8	21

Two pairs held territories at Chichester GP in May and June but no young were reported. At Arundel WFT there were 4 pairs on 20 June; 4 broods hatched but no more than 8 young fledged.

At Weir Wood Res. 1 was present on 2 Jan., up to 5 in Feb. and 2 females for much of the second half of Mar. Thereafter 3 were present on 20 May, but 1 on 22 Sept. was the only record for the second half of the year. Elsewhere a female was at Burton Pond on 19 Feb. and a pair there on 26 Feb., also 2 females at the Crumbles GP from 22 Jan. until 5 Feb.

97. **HONEY BUZZARD** *(Pernis apivorus):*—Single birds were recorded in the interior in June and Sept. One flew out to sea at Pebsham on 15 Oct. (KJ).

98. **BLACK KITE** *(Milvus migrans):*—One over Pett Level on 30 Apr. (BHF) has been accepted by *British Birds,* the sixth county record.

99. **RED KITE** *(M. milvus):*— One near Battle on 18 June (JG); May and June records have been increasing in recent years. At the end of the year one W at Fairlight on 4 Nov. (SJRR) may have been the same as 1 at Beachy Head on the 5th (RB). One at Pagham Hbr. on 9 Dec. (AC, LC).

103. **MARSH HARRIER** *(Circus aeruginosus):*—One in the Pett area on 1 Jan. (SJRR), an unusual date. A good spring passage involved 14 birds between 1 on 3 Apr. near Henfield and 1 on 25 May at Arundel WFT. Otherwise birds were confined to the 2-week period 24 Apr.-7 May, with a total of 5 along the coast from Selsey Bill to Hastings on 5 May.

In the autumn singles were recorded at Cissbury on 11 Aug., Pagham from 18 Aug. to 1 Sept., Belle Tout from 12-19 Aug. and Tarring Neville on 14th.

104. **HEN HARRIER** *(C. cyaneus):*—Again high numbers recorded with a total of 43-46 birds in all. Monthly totals were:

	Jan.	Feb.	Mar.	Apr.	May	Aug.	Sept.	Oct.	Nov.	Dec.
Adult males	6	4	3	1-2	0	0	0	2	3	5
Others	10	9	5	1	1	1	1	5	11	10

The records were again mapped and groupings emerged as follows:

Midhurst area. Present from 11 Jan. when the maximum of 3 males and 3 ring-tails were

recorded, until 12 Apr. when 2 were last seen. At the end of the year recorded from 29 Oct. with a maximum of 3. The full extent of these birds' range is not known but it appears to be of some 8 miles from west to east. Although there are no clearly linking records, 2 birds hunting on the Downs in the West Dean area in the early months and 1 in Dec. may be connected with this group.

Chichester Harbour. Up to 2 ring-tails until 18 Mar. A total of 3 birds was involved as 1 of 2 present on 6 Jan. was found dead on the 8th; the third appeared on 18 Feb. One present from 4-11 Nov.

Selsey Peninsula. None wintering in the early months when single ring-tails on 14 Feb., 10 Apr. and 19 May (RJS) only. A very early bird on 14 Aug. (RML) and later a ring-tail present from 10 Nov. until the end of the year, with 2 on 31 Dec.

Amberley Wildbrooks. A ring-tail from 1 Jan. to 18 Mar. was working over *c.*1160 *ha* from the Wildbrooks to the Downs. A male on 20 Apr. may have shifted from the Cissbury area. A ring-tail present from 18 Nov.

Cissbury/Chanctonbury. A male from 21 Jan. to 18 Apr. and a ring-tail from 4 Jan. to 26 Feb.

Ashdown Forest. A ring-tail on 10 Jan. and a male from the 4th until 30 Mar. A male and a ring-tail present from 13 Oct.

Pevensey Levels. None in the early months. A ring-tail from 30 Nov.

Pett/Rye/Brede Valley. A male from 18 Jan. to 18 Feb. and a ring-tail from 22 Jan. to 18 Feb. At the end of the year a male wintering from 7 Nov. and a ring-tail from the 17th, with a second ring-tail on 8 Dec. There seems little doubt that the records from these areas refer to the same birds working over some 3,200 *ha.*

Midrips/Wicks. Single ring-tails from 19 Jan.-23 Mar. and from 30 Oct.

In addition single records from Glynde Levels in Mar., and Shoreham, Normans Bay, Lullington Heath, High and Over, Ashcombe Bottom, Glynde Levels, Arundel and Combe Haven at the end of the year make no clear pattern. These birds may be migrants (as was 1 at Fairlight on 30 Sept.) or possibly wintering birds shifting ground.

105. **MONTAGU'S HARRIER** *(C. pygargus):*—One at the Midrips on 28 May (HARC) and 1 at Beachy Head on 28 Aug. (RHC).

The May influx of harriers (see under Marsh Harrier) also included ring-tails on 6 May (2) and the 13th which may have been this species or Hen Harriers.

108. **SPARROWHAWK** *(Accipiter nisus):*—The large volume of records received has been used to bring the breeding season records in the paper in *Sx.BR* 36:74-82 up to a full 25 years. Thus Table I of that paper should be amended to read:

Sites occupied in breeding season

Years inclusive	*Sites breed: proved*	*Sites probably bred*	*Sites birds present*	*% occupied 3+ yrs.*	*% occupied once*
1980-84	40	43	121	22	38

The continued decrease in sites occupied only once in 5 years should be noted.

Table III of that paper should be amended to read:

	Breeding success		*% population breeding*		*Large broods*	
Period	*Proved breeding records*	*Average brood size*	*Occupied breeding season sites*	*Proved breeding as a % sites*	*No: of broods of 3 young or more*	*Total young reared*
1980-84	50	2.3	204	30%	22	81

Thus breeding performance has continued to improve.

109. **COMMON BUZZARD** *(Buteo buteo):*—As is now usual the records make no coherent pattern, almost certainly because the bulk of the birds being seen in Sussex derive from introductions. Thus birds were regularly recorded over a fairly large area centred on Ashdown Forest, where Pippingford Park is reported as the source of introductions, and a group of up to 3 was recorded widely over West Sussex, mainly from Cissbury/Chanctonbury, Arundel and Midhurst.

Peaks of records for Mar., Apr., Aug. and Sept. coincided with a rather wider distribution and suggest some genuine passage but it is impossible to prove.

113. **OSPREY** *(Pandion haliaetus):*—There was an exceptional spring passage. The first was seen at Bewl Bridge Res. on 9 Apr. (PCB), an early date. Thereafter singles were seen at Pebsham on the 16th and Chichester Hbr. on the 21st. In May a total of 8 was seen between the 2nd and the 23rd at Bewl Bridge Res. (2), Seaford, Weir Wood Res., Ardingly Res., Combe Haven, Rye and Pagham Hbr./Selsey Bill; see also Marsh Harrier.

In the autumn singles at Darwell Res. on 12 Aug. and Chichester Hbr. on 30 Sept. only.

115. **KESTREL** *(Falco tinnunculus):*—In a large volume of reports there were 34 records of proven breeding; of these 2 pairs failed and 27 pairs raised at least 61 young, an average brood size of 2.25. The overall average for the past 5 years has been 2, so 1984 was a good year. As with Sparrowhawk breeding success has not improved in Sussex over the past 25 years and it is interesting to note that, despite a wide distribution in East Sussex, the breeding performance of Kestrels declines very sharply east of TQ 40 in the same way as Sparrowhawks. Six of the successful Kestrel pairs reported were breeding in the urban area of Brighton — on the cliffs above the Marina, 2 churches, the racecourse grandstand, a disused brewery (misguided birds) and a school.

Eighteen were reported together near Chanctonbury on 15 Sept.

118. **MERLIN** *(F. columbarius):*—Monthly totals were:

Jan.	Feb.	Mar.	Apr.	May	Aug.	Sept.	Oct.	Nov.	Dec.
3	4	3	3	0	1	4	11	8	4

The only definitely wintering bird in the early months was 1 around Chichester Hbr. The last spring bird was seen at Beachy Head on 29 Apr.

Autumn arrival was early, with singles at Sidlesham Ferry on 31 Aug., Rye on 1 Sept. and Beachy Head on the 8th. One seen between Hassocks and Ditchling at 0800 on 27 Oct. was presumably the same as 1 seen at Upper Beeding at 12.30, an interesting demonstration of how records of wide-ranging birds may be duplicated. Interestingly this species seems to be occurring north of the Downs with greater frequency.

At the end of the year birds were wintering around Chichester Hbr. the Selsey Peninsular (2), Pevensey Levels and Rye Hbr.

119. **HOBBY** *(F. subbuteo):*—Successful breeding was recorded at 6 sites, 5-7 young being raised at least.

First recorded on 18 Apr. and migrants at the coast were:

Apr.	May	June	Aug.	Sept.	Oct.
9	20	2	7	16	2

The last were singles at Thorney Island and Rye on 20 Oct.

123. **PEREGRINE** *(F. peregrinus):*—Singles at Glynde Reach on 8 Jan. (LJS, PJW) and 15 Dec. (ARK, MJH). One arrived at Rye on 30 Sept. (many obs.). One at the Cuckmere on 27 Sept. (PJW) was a different bird to the male at Beachy Head from Aug. to 13 Dec. or the female there from 11 Sept. to 14 Oct. (RHC *et al.*). A female in the Cuckmere Valley on 15 Sept. may well have been the Beachy Head bird. One at Pagham Hbr. on 10 Nov. (EDL).

129. **RED-LEGGED PARTRIDGE** *(Alectoris rufa):*—Widely released for game shooting. The largest coveys were of 25 at Halseys Farm, Pagham on 29 Nov. and 22 at Sidlesham Mill on 30 Aug.

130. **GREY PARTRIDGE** *(Perdix perdix):*—The scattered records submitted do not represent true status of the species but 15 pairs bred in the 725 *ha* of Rye Hbr. SSSI where on 31 Dec. 3 coveys totalled 40 birds. Other large coveys were 34 on 1 Nov. at Stanmer where 18 were seen on 26 Aug. Unusually a bird was seen perching on a low oak branch at Mountfield on 16 June.

131. **QUAIL** *(Coturnix coturnix):*—Five heard calling spanned 26 Apr. to 7 July, a long period. These were 26-27 Apr. on the Downs at Denton, 6 May on the Adur Levels at Small Dole, 10-16 May at Beachy Head, 30 June on the Downs near Amberley and 7 July on the Downs west of Lewes. One flushed at Rye Hbr. on 25 Aug. (MJH, DB).

Cat. C. **GOLDEN PHEASANT** *(Chrysolophus pictus):*—During the breeding season 4 territories were noted in 12.1 *ha* of West Dean Woods and 13 territories in 117.9 *ha* of Kingley Vale. These show an increase from the 2 and 11 territories respectively recorded in 1983.

136. **WATER RAIL** *(Rallus aquaticus):*—The monthly totals reported were:

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Number reported ..	52	54	13	8	12	9	13	17	25	55	72	62
Number of localities	8	11	9	8	5	3	6	3	5	7	11	7

The numbers were much higher than in recent years as 40 wintered early and 50 late in the year at 1 area not previously counted; here, in three separate sites 9 territorial males were located during the breeding season and at least 3 bred successfully. Elsewhere, however, numbers were slightly below normal with peaks of 6 at Rye Hbr. and 4 Pagham Hbr. in Nov.

142. **MOORHEN** *(Gallinula chloropus):*—This species is markedly under-recorded. The largest counts were of 149 in Feb. for Chichester Hbr. when 70 were in the field immediately E of Chichester Yacht Basin, 135 at Chichester GP in Jan. when at least 98 visited the field of winter wheat by North Portfield pit and 99 were at Rye Hbr. on 11 Nov. On the special count of inland waters carried out on 14-15 Jan. 746 were noted on 91 sites, interestingly 61 waters did not appear to support the species. At this time the peak counts were 76 on the Chichester Canal, 48 at Chalvington Pits, 40 at Ferring Duck Pond and at Aldingbourne Manor with 30 at Aldingbourne Rife and at Falmer Pond. The only other large counts were peaks of 55 in Mar. and 33 in Dec. at Pagham Hbr. and 30 at Petworth Park on 31 Dec. The few breeding records were 5-6 pairs at Rye Hbr. and 5-7 pairs at Weir Wood Res.

145. **COOT** *(Fulica atra):*—Autumn and winter counts at the principal localities were:

	Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	Dec.
Chichester GP	129*	210*	45*	935	—	—	506*
Rye Hbr.	550	700	203	126	94	187	322
Bewl Bridge Res. ...	572	562	350	274	310	323	310
Chichester Hbr.	137	325	72	100	196	101	284
Crumbles GP	210	160	50	60	250	300	350
Pett Level	—	133	—	6	20	49	86
Weir Wood Res. ...	80	120	75	62	10	35	31
Arundel WFT	180	77	38	133	130	115	154
Pagham Hbr.	146	137	80	34	26	30	33
Waltham Brooks ...	100	100	64	11	17	22	31

*Incomplete

In addition to the Jan. counts given above a further 349 were found on 14-15 Jan. at 17 regular wildfowl count sites including Ardingly Res. 126, Swanbourne Lake 52, Barcombe Res. 48, Lurgashall 26, Petworth Park 26, Darwell Res. 22 and Powdermill Res. 20. Elsewhere 320 were found at 33 of the 152 extra sites visited. These included 88 on Chichester Canal and 29 at Brooklands, otherwise all other counts were of less than 20 and most were less than 10. Assuming a total of *c.*900 were unaccounted for at Chichester GP and Pett Levels, the number of birds wintering in Jan. was probably in excess of 3,700. At Brighton Marina 2 overwintering birds stayed until 26 Feb. and at Widewater the 8, later reducing to 6, finally left on 16 Mar.

Very little breeding information received but the breeding population at Weir Wood Res. was 20-25 pairs and at Rye 15-17 pairs. At Bewl Bridge Res. breeding success was reported to have been very poor. Later in the year numbers at Darwell Res. increased from the usual *c.*30 to 108 on 16 Sept. Numbers at Bewl Bridge were much reduced by the lack of Canadian pond weed.

146. **CRANE** *(Grus grus):*—Five at Beachy Head on 5 Apr. (RHC, MEC) appear to have

been seen previously at several sites in Kent. An immature on the Adur Levels at Small Dole from 29 Apr. to 9 May (AJP *et al.*). They have been accepted by *British Birds.*

151. **OYSTERCATCHER** *(Haematopus ostralegus):*—The estuary counts were:

	1984						*1984*	*1985*		
	Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
County totals	*2627*	*2126*	*1786*	*1863*	*1838*	*1642*	*1592*	*1946*	*1729*	*1711*
Chichester Hbr.	1286	901	663	1013	998	903	702	808	728	557
Rye Hbr.	699	590	502	510	390	420	440	530	447	576
Climping	300	352	300	nc	224	281	166	250	220	230
Pagham Hbr.	328	272	306	339	197	6+	254	333	326	337

Numbers in early 1984 were fairly high but in the 1984-85 winter they were at their lowest since 1979, no count exceeding 2,000. The decrease was almost entirely confined to Chichester Hbr. where the peak count was the lowest for a decade — has there been a crash in cockle stocks?

Unusual numbers moved along the coast in spring. At Brighton Marina 738 went E and 110 W while at Worthing 540 flew E and 184 W. Only 61 went E at Beachy Head. Inland observations were singles at Bewl Bridge Res. on 3 and 30 Apr., at Ardingly Res. on 16 Apr. and heard passing over Pebsham at night on 18 and 19 May. Approximately 290 non-breeders summered in Chichester Hbr., 250 in Rye Hbr. and 45 at Climping. At Pagham Hbr. 17 pairs raised a maximum of 6 young and there were 18 pairs at Rye Hbr., 2 at the Midrips and on Thorney.

Return passage was seen at Bewl Bridge Res. as early as 25 June with another there on 15 July. Other inland sightings included an unusually large flock of 10 at Weir Wood Res. on 2 Aug. and a single there on 6-7 Aug. Unusually up to 12 were regular on West Worthing beach and up to 5 on Widewater beach.

152. **BLACK-WINGED STILT** *(Himantopus himantopus):*—Two near Boreham Street on 12-18 May (RH, DH, MSH, MJSH *et al.*); only the second record since 1961, the last being in 1978, they have been accepted by *British Birds.*

153. **AVOCET** *(Recurvirostra avosetta):*—A very wide scatter of records gave the monthly totals of:

Jan.	Feb.	Mar.	Apr.	May	July	Aug.	Sept.	Oct.	Nov.	Dec.
—	2	13	11	25	5	14	3	2	2	3

None appeared to be wintering in the early months, when the largest group seen was 5 E at Dell Quay on 18 Mar. The records until May appear to involve return passage of the Devon wintering population but the May movement was associated with other wader species moving up from Southern Europe. In May parties of 6 at Pagham Hbr. and 4 at the Midrips were seen on 18th, 4 at Weir Wood Res. on 24th and 2 at Worthing on the 6th and 13th.

Return passage included 6 on the Cuckmere on 28 Aug., 2 on Pett Pools on 29th and 1 on Widewater on 31st. The scattered observations for the rest of the year included singles at Scotney Court GP on 18 Nov. and Arlington Res. on 2 Dec. The only wintering birds were singles in Pagham Hbr. and on Thorney Island.

154. **STONE CURLEW** *(Burhinus oedicnemus):*—The only record was of a single near Pagham Hbr. on 5 Apr. (JET).

158. **LITTLE RINGED PLOVER** *(Charadrius dubius):*—The approximate monthly totals were:

Apr.	May	June	July	Aug.	Sept.
19	18	11	32	29	5

Arrival was late with singles at Bewl Bridge Res. on 4 Apr., Waltham Brooks on 9th and Hastings on 10th. Quite good numbers were then seen and this is reflected by the 6 pairs which appeared to attempt breeding at 5 sites, 3 in the west and 2 in the east. The very early post-breeding dispersal of young birds complicates the assessment of breeding success but 2 pairs at 1 site raised 7 young, a pair elsewhere appeared to raise 2 young and another, 1.

Autumn migration was good with peaks at Pett Pools of 9 on 31 July and 8 on 19 Aug.,

and 6 at Sidlesham Ferry on 25 July. The last were singles at Pett Pools on 6 Sept., at Weir Wood Res. on 10th and Sidlesham Ferry on 14th.

159. **RINGED PLOVER** *(C. hiaticula):*—The estuary counts were:

	1984						*1984*	*1985*		
	Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
County totals	*945*	*735*	*255*	*1182*	*1081*	*759*	*1273*	*517*	*502*	*248*
Chichester Hbr.	289	274	54	434	556	336	572	233	126	32
Goring	260	170	—	115	174	133	328	130	140	—
Pagham Hbr.	140	101	37	261	110	27	204	33	49	102
Rye Hbr.	5	15	28	253	50	35	—	3	55	53
Adur	130	109	77	60	87	100	16	43	50	20
Climping	50	24	50	—	34	30	13	30	33	—
Cuckmere	46	36	—	24	44	50	37	5	3	19

The Dec. count was the largest wintering total yet recorded in the county and was a result of unusually large flocks at 3 major sites. Autumn totals, however, were unexceptional. During recent years a flock has roosted regularly on Brighton Marina, this year it increased again to peak at 40 in Dec. During the spring passage 80 flew E past Worthing, 60 in May. Inland 1-3 birds were briefly present on 7 days at Chichester GP, Arundel WFT and Waltham Brooks.

The 128 pairs which attempted to breed in the county are tabulated in the paper on pages 72-74. This is the largest total yet documented.

A larger autumn migration inland than in 1983. The earliest were at Bewl Bridge Res. on 30 June and at Waltham Brooks on 14 July. The main peaks were 8 at Waltham Brooks on 26 July, 10 at Chichester GP on 1 Sept. and 10 at Arlington Res. on 9 Sept. Significant coastal counts included 260 on the R. Adur on 9 Nov. and 65 on Widewater on 29 Aug. A melanistic individual with virtually black upperparts was on the Goring roost on 28 Oct.

161. **KENTISH PLOVER** *(C. alexandrinus):*—Single males were present on the R. Adur on 17 July (KN, AJP *et al.*) and at Sidlesham Ferry on 5 Oct. (MS).

165. **GOLDEN PLOVER** *(Pluvialis apricaria):*—The numbers noted at the main coastal sites were:

	1984						*1984*	*1985*		
	Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Chichester Hbr.	415	801	935	222	147	414	1386	44	253	414
Pevensey Levels	1000	600	650	250	150	2500	1200	700	30	180
Pagham Hbr.	623	460	17	45	197	805	728	—	11	200
Bracklesham Bay ..	—	383	400	—	—	30	—	—	—	102
Rye Hbr.	256	103	—	—	—	180	200	—	—	—

Numbers were relatively low although a small movement took place between 15-25 Feb. when 78 were at Bishopstone, 60 at Chichester GP, and 34-39 at Hurst Green, Lewes Brooks and Ringmer. The last spring migrants were at Selsey Bill on 6 May, at Sidlesham on 11th and Thorney Island on 25th.

An early bird was back on Thorney by 13 July; the July peak here was 6 on 18th and up to 9 were present in Aug. Late in the year the only other flocks of note were 300 at Jury's Gap on 25 Nov. and 50 at Ringmer on 2 Dec.

166. **GREY PLOVER** *(P. squatarola):*—The estuary counts were:

	1984						*1984*	*1985*		
	Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
County totals	*2491*	*2239*	*1803*	*1613*	*1814*	*2231+*	*2499*	*1836*	*1841*	*2008*
Chichester Hbr.	1541	1331	1199	1217	1249	2048	2005	692	1078	986
Pagham Hbr.	627	667	600	391	545	88+	351	890	412	949
Goring	286	230	—	—	8	49	119	183	192	—
Pett Levels	—	—	—	3	1	20	23	nc	84	—
Rye Hbr.	—	1	—	2	8	2	—	13	6	70
Climping	52	—	—	—	—	22	—	47	62	—

Large numbers were present each end of the year, particularly in Chichester Hbr. As usual very small numbers were seen at other coastal sites. The spring migration along the coast was fairly poor and is summarised on pages 61-64.

In Chichester Hbr. 130 immatures summered. The first large autumn influx was noted here on 12 Aug. and by 25th 511 were present at Chidham. At the Midrips 1 returned on 17 June. There were 2 inland records of singles at Weir Wood Res. on 17 May and Bewl Bridge Res. on 18 Sept.

169. **LAPWING** *(Vanellus vanellus):*—Regular counts at the main sites were:

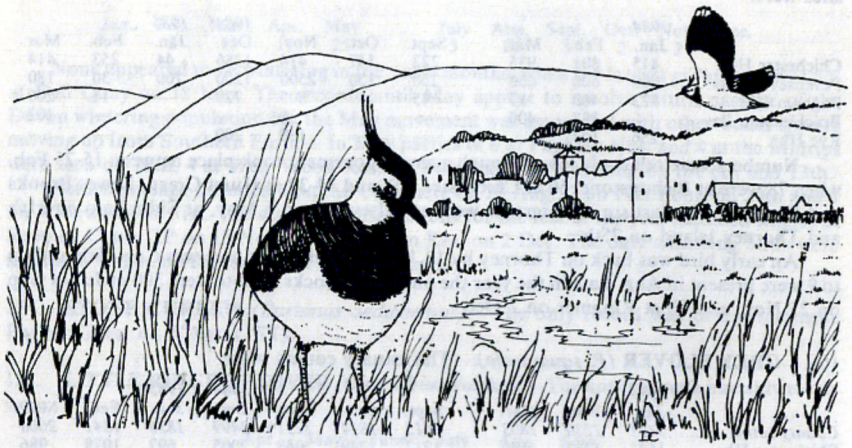
	Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	Dec.
Pevensey Levels	2000	8000	1500	1200	2000	16000	8000
Chichester Hbr.	1404	3062	1541	815	1147	2875	2000
Adur Levels	2400	900	750	—	500	3000	2500
Pagham Hbr.	1087	1296	261	799	1152	2392	2698
Cuckmere	1600	1400	2	300	400	2600	1200
Climping	9	123	7	nc	950	2300	475
Rye Hbr.	700	961	1343	264	88	446	1197

Early in the year a peak count of 2,000 was recorded at each of Arlington Res., Barcombe Res. and Waltham Brooks. Numbers throughout the 2 winter periods were about average.

Breeding counts brought further evidence of declining numbers. At Rye Hbr. 60 pairs were located (80 in 1983), only 6 pairs were on the entire Lewes Brooks, 4 pairs were unsuccessful along Combe Haven and 38 pairs were on Amberley Wildbrooks SSSI. A summary of other records and habitat usage is given on pages 75-80. Returning or post-breeding concentrations were noted at Thorney Island on 2 June, Pevensey Levels on 4th and at Bewl Bridge Res. on 9th.

A substantial movement took place during Dec. when additional counts included peaks of 3,500 at Ringmer, 3,000 at Chalvington and 1,000 at both Arlington Res. and Waltham Brooks.

A striking leucistic individual was on Thorney Deeps from 12 Feb. to 18 Mar. and back again by 9 Dec.



170. **KNOT** *(Calidris canutus):*—The estuary counts were:

	1984						*1984*	*1985*		
	Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
County totals	*452*	*446*	*10*	*29*	*6*	*44*	*306*	*796*	*756*	*8*
Chichester Hbr.	450	440	1	—	—	44	304	633	650	7
Pagham Hbr.	—	1	9	10	—	—	2	161	105	1

Numbers were again low. In Mar., when west European wintering birds move back to the Wadden Sea, other records were a peak of 21 at Pagham Hbr., 2 on the Cuckmere and 1 on the Adur. A summary of spring passage is given on pages 61-64; it peaked in May with 41 E at Selsey Bill on 10th, 38 E at Beachy Head on 6th and 35 at Rye Hbr. on 16th. At Pagham Hbr. a small flock was regular all May with a peak of 24 on 30th and 3 were still present on 3 June. On 5 May 5 flew NE inland from Seaford with 70 Bar-tailed Godwits. Two summered at Rye Hbr. and 12 at Chichester Hbr.

Return passage started on 23 July at Pagham Hbr. and 1 Aug. at Rye Hbr. and Pett Pools. Small numbers were noted on the Adur, Cuckmere and Midrips; at Pett Pools numbers were unusually high, especially 5-25 Sept. with a peak of 29 on 10th. The first juveniles were at Rye Hbr. on 11 Aug. There were 2 inland records, at Chichester GP on 27 Aug. and Arlington Res. on 3 Sept.

171. **SANDERLING** *(C. alba):*—The estuary counts were:

	1984						*1984*	*1985*		
	Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
County totals	*212*	*704*	*218*	*327*	*322*	*444*	*673*	*426*	*427*	*691*
Chichester Hbr.	3	330	82	300	283	235	450	3	25	600
Rye Hbr.	54	98	95	27	26	65	140	290	197	90
Climping	3	205	41	nc	3	—	—	50	145	—
Goring	152	70	—	—	10	140	83	80	60	—

A typical showing but the inconsistent nature of its occurrence at Climping is becoming ever more apparent; the many walkers, dogs and joggers on much of the sandy West Sussex coast seem to push this species backwards and forwards.

Spring passage along the coast was good with a record 650 E at Worthing, where peak days were 87 on 10 May, 85 on 18th and 65 on 17th. Further details on this movement appear on pages 61-64. Passage ceased on 28 May at Brighton Marina, 3 June at Worthing, at Climping on 6th and at Rye Hbr. on 8th. At Rye Hbr. 2 on 28 June may have been summering but what 1 at Weir Wood Res. on 29 June was doing can only be surmised.

The first returning birds were at Rye Hbr. on 18 July, R. Adur on 21 July and by 22 July 100 were on Thorney Island. The passage through Rye Hbr. peaked at 160 on 19 Aug. A single was at Bewl Bridge Res. on 25 Nov.

175. **LITTLE STINT** *(C. minuta):*—Recorded in slightly lower numbers than last year, the approximate monthly totals being:

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
—	—	—	—	4	—	6	13	54	48	3	—

The only spring record was of 4 together at Sidlesham Ferry on 22 May. The first of the autumn was at Widewater on 25 July followed by 2 at Sidlesham Ferry and 1 at Pett Pools on 28th. Few were reported in Aug. or early Sept., most records being of widely scattered singles. On 16 Sept. 6 were at Rye Hbr. with 6 at Sidlesham Ferry from 17th, the latter rising to 13 late in the month. Five at Pett Pools on 25th increased to 20 on 1 Oct., but only 14 were there the next day and 3 mid-month. On 13 Oct. 9 were still at Sidlesham Ferry with 5 at Chichester GP and 4 at Cuckmere Haven. Few were reported after this, the last being singles at Weir Wood Res. on 29-30 Oct., Pett Pools on 3 Nov. and 2 at Sidlesham Ferry to 4 Nov. and 1 to 14th.

177. **LEAST SANDPIPER** *(C. minutilla):*—An adult graced the mud exposed by the SOS pumping at Pett Pools on 28 July (PJG, KB *et al.*). This has been accepted by *British Birds* and is the first to be recorded in Sussex.

179. **TEMMINCK'S STINT** *(C. temminckii):*—Two were seen in spring; on the Cuckmere

scrape on 3 May (GG) and at Sidlesham Ferry on 20-23 May (EDL, BJ, CMJ *et al.*). There were juveniles at Rye Hbr. on 8-18 Aug. (BY) and Pett Pools on 9 Aug. (RKH).

180. **PECTORAL SANDPIPER** *(C. melanotus)*:—A well-marked juvenile was at Selsey West Fields 26 Sept. to 1 Oct. (DLS, JH, CRJ *et al.*).

182. **CURLEW SANDPIPER** *(C. ferruginea)*:—An above average year for this species, the approximate monthly totals being:

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
—	—	—	1	2	—	7	40	22	14	—	—

Three were reported in spring, at Rye Hbr. on 22 Apr., Brighton Marina on 17 May and at Widewater on 25 May.

The first bird of the autumn was at Sidlesham Ferry on 9 July and another was there on 28th, with 2 at Pett Pools on 20th and 3 at Rye Hbr. on 29th. These localities produced most of the autumn records with small numbers usually present at each until early Oct. At Rye Hbr. a flock of 21 was present on 2 Aug. with 7 there on 27th. The last of the year were 2 at Cuckmere Haven on 13 Oct. and 1 flying over Bewl Bridge Res. on the 18th.

183. **PURPLE SANDPIPER** *(C. maritima)*:—The monthly peaks were:

	Jan.	Feb.	Mar.	Apr.	May	Oct.	Nov.	Dec.
County totals (minimum) ..	*50*	*51*	*12+*	*44+*	*11*	*13*	*48*	*41*
Langney-Glyne Gap	1	6	1	35	nc	4	16	8
Newhaven	24	30	nc	nc	3	—	25	23
Littlehampton	9	8	9	8	8	4	6	7
Adur Hbr.	9	—	—	—	—	—	—	—
Brighton Marina/W. Pier .	2	4	2	1	—	1	nc	3
Other sites	5	3	—	—	—	4	1	—

For much of the winter the major site remained Newhaven Hbr. but perhaps the late winter influx at Glyne Gap involved the Newhaven flock. Elsewhere numbers were moderate and no records came from the Adur after 4 Jan. Late birds were at Newhaven on 18 May. The first returned on 16 Aug. when 2 were on Selsey West Beach but after that the next sightings were in Oct., on 6th at Hastings, 13th at Rye Hbr., 21st at Brighton Marina and 24th at Littlehampton. Late in the winter numbers were low.

184. **DUNLIN** *(C. alpina)*:—The estuary counts revealed:

	1984						*1984*	*1985*		
	Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
County totals	*22841*	*33348*	*16685**	*1018*	*7466*	*11485*	*31209*	*24628*	*25200*	*13308*
Chichester Hbr.	18280	28293	10688	225	6053	10917	27028	17726	21102	9782
Pagham Hbr.	3260	3587	3106	571	1208	86+	2720	3823	2316	3270
Rye Hbr.	35	350	235	126	114	112	4	1500	600	106
Adur	450	600	620	26	42	280	900	1030	500	70
Goring	550	300	nc	3	12	42	450	350	300	nc

*Correction *cf* 1983 *SxBR*

Reasonably large numbers were present again even though the early winter build-up was very slow, the Nov. figure being at least 10,000 below the typical level. From late Jan. to late Feb. up to 200 fed on grassland in Bracklesham Bay and 96 on the Lewes Brooks.

The extended spring passage was noted at 6 inland sites with peaks of 14 at Chichester GP on 21 Apr. and 10 at Waltham Brooks on 11 Mar. However, the main coastal movements were in late Mar. and early May. A summary of these sightings is on pages 61-64. The total of 480 E at Worthing was the highest recorded there. Spring migration ended on 1 June at Worthing and 2 summered at Rye Hbr. The status of 12 on Thorney on 13 June and 1 at Widewater on 14th are uncertain but 2 in Chichester Hbr. on 29th and up to 11 at Rye Hbr. during the last week of June appeared to be returning birds. By 2 July 70 were at Pagham Hbr. and numbers built up steadily. The first juveniles were noted at Rye Hbr. on 14 July and Pagham Hbr. on 15th. Small numbers were at 6 inland sites mainly July-Sept. but singles were at Bewl Bridge Res. and Weir Wood Res. in mid-Nov.

188. **RUFF** *(Philomachus pugnax)*:—For approximate monthly totals see p.27.

Apart from Nov., the numbers on the Selsey Peninsular were less than half normal;

perhaps because the flocks now range more widely and are more difficult to locate. A new flock based on Waltham Brooks may be beginning to form as for the second year over 20 were noted there.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
County totals	*89*	*72*	*115*	*15*	*20*	*6*	*30*	*64*	*66*	*67*	*161*	*103*
Pagham/												
Bracklesham	85	72	78	3	3	2	15	30	45	65	159	82
Waltham Brooks ...	2	—	28	8	14	—	1	3	3	—	—	20
Rye Hbr.	—	—	—	2	1	4	12	9	1	1	—	—

189. **JACK SNIPE** *(Lymnocryptes minimus)*:—The approximate monthly totals were:

	Jan.	Feb.	Mar.	Apr.	May	Sept.	Oct.	Nov.	Dec.
Number of birds	19	19	21	4	1	1	4	16	25
Number of sites	5	5	6	2	1	1	1	7	7

During Jan.-Mar. the bulk of the records came from 3 sites, near Hastings, Lewes and Rye Hbr. with peaks of 8, 7 and 5 respectively. Up to 2 were at Chichester Hbr. and there were singles at Bewl Bridge Res., Crowborough Bog and Littlehampton. At Lewes the last was seen on 28 Apr. but at Hastings 1 was present to 1 May.

The first returned to Hastings on 25 Sept. but not until 24 Nov. at Lewes. Apparent migrants were at Arlington Res. on 2 Nov. and Beachy Head on 17 Nov. Peaks at Hastings were 7 and at Pevensey Levels and Lewes 4. Otherwise there were singles at the Cuckmere, Littlehampton and Pett Level and an ususual flock of 6 near Berwick on 15 Dec.

190. **SNIPE** *(Gallinago gallinago)*:—In Jan.-Mar. peaks of 600 on Pevensey Levels, 500 at Amberley, 280 near Pebsham, 156 on the Adur Levels and 100-120 on the lower Cuckmere, Chichester Hbr. and Etchingham.

The species is notoriously difficult to census accurately when breeding and the few records sent in do not indicate the size of the total population. In the Arun Valley there were 3 males on Pulborough Brooks, 3 on Waltham Brooks and 5 on Amberley SSSI; this total was 11 males compared with 28 in 1980-81 (*SxBR* 34:66). Elsewhere there were 6 males in the Crowhurst Valley and 1 returned to Crowborough Bog after a 6-year absence. Generally the summer was very dry and this may have reduced the number remaining to breed.

Late in the year numbers were reasonably high, especially during Dec. The main concentrations peaked at 1,000 at Amberley, 1,500 on Pevensey Levels, 370 at Rye Hbr., 300 at Pebsham, 223 around Chichester Hbr., 171 at Pagham Hbr. and 100+ at Newhaven Tidemills.

194. **WOODCOCK** *(Scolopax rusticola)*:—Up to about 10 were noted at coastal or downland sites, where no breeding birds occur, both early and late in the year; a scattering was also noted wintering inland in areas where they breed. A bird flying E off Brighton Marina on 23 Mar. must have provided an unusual sight. The latest downland record was on 11 Mar. and the first returned to Cissbury on 11 Oct., an early date, and to the Lewes Downs on 31 Oct.

Four males were noted roding at Blackdown Hill and Stoughton Wood and 3 at Binstead and Coates Common. Many were roding on Ashdown Forest but the exact numbers involved cannot be assessed. After two years during which the recorded breeding distribution remained as figured in *SxBR* 34:83, there were records from an additional 7 tetrads — SU 81G, SU 92J, TQ 23H, J, TQ 42Z, TQ 71X and TQ 72Q.

195. **BLACK-TAILED GODWIT** *(Limosa limosa)*:—The estuary counts were:

	1984						*1984*	*1985*		
	Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
County totals	*368*	*537*	*327*	*599*	*724*	*389*	*447*	*468*	*462*	*353*
Chichester Hbr.	354	494	290	536	683	371	346	392	395	353
Pagham Hbr.	14	43	34	59	39	18	101	76	67	—

After two good years, numbers were down to previous levels. On 30 Oct. 1,070 were present at high water at Chidham.

Inland, the only winter record was 2 at Chichester GP on 2 Jan. but there were 4 at Glynde Reach on 11 Mar. and 2 at Pulborough Brooks on 17th. In Apr. another 2 were at

Waltham Brooks on 7th, 1 on the Adur Levels on 3rd and an unusual sighting was of 9 NE over Hindleap Warren on 30th. At Waltham Brooks there were 18 on 6 May and 5 on 13 May.

In autumn 28 were back at Sidlesham Ferry by 28 June and numbers grew to 55 by 6 July and 68 on 16th. At this time 85 were on Thorney Island and single inland records came from Scotney Court GP and Chichester GP. At this last site birds were sporadically recorded until 15 Sept. with a maximum of 8 on 31 July. They were more regular than usual at Pett Pools from 26 Aug. to 20 Oct. with a peak of 5 on 8 Sept., and at Rye Hbr. from 21 June to 26 Oct. with the peak of 7 on 5 Sept.

196. **BAR-TAILED GODWIT** *(L. lapponica):*—The estuary counts were:

	1984						*1984*	*1985*		
	Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
County totals	*467*	*1355*	*179*	*686*	*815*	*913*	*735*	*976*	*805*	*433*
Chichester Hbr.	467	1350	171	658	749	913	731	881	791	427
Pagham Hbr.	—	5	8	13	64	—	4	87	5	—

An average showing; again almost entirely restricted to Chichester Hbr. with an occasional group on Pagham Hbr. The 1,355 peak was, however, the largest since 1976.

The coastal spring passage is discussed on pages 61-64. The totals seen at the main sites were 2,301 at Selsey, 7,418 at Worthing, 7,220 at Brighton Marina and 5,688 at Beachy Head. On one of the days with heavy passage, 27 Apr., 200 flew E over Ashdown Forest at dusk. The roost at Rye Hbr. was occupied from 6 Apr. to 31 May but involved substantial numbers only from 27 Apr. to 10 May with a peak of 500 on 1 May. Two summered here and 5 were in Chichester Hbr.

In autumn they were scarce with inland records of singles W at Cissbury on 8 Aug. and on Waltham Brooks on 21 Oct. Up to 2 were present 9-20 Aug. on the Midrips and 1-18 Aug. on Pett Pools, and up to 4 were on the Adur 29 Aug.-19 Sept.

198. **WHIMBREL** *(Numenius phaeopus):*—An apparently wintering individual was on the R. Adur near Lancing College on 20 Feb. The first spring migrants were 3 past Brighton Marina on 23 Mar., an unusually early date, followed more typically by 7 at Chichester Hbr. on 7 Apr., and by singles at Pagham Hbr. on 8th and over Lancing on 9th. Passage continued in strength to 27 May and at the main seawatching sites the totals recorded moving E were 278 at Selsey, 846 at Worthing, 1,231 at Brighton Marina and 412 at Beachy Head. The Rye roost peaked at 286 on 30 Apr. and was vacated after 15 May. Further details are summarised on pages 61-64. A scattering was seen or heard over many inland areas, with 30-35 feeding on Amberley Wildbrooks from at least 25 Apr. to 1 May; in view of major spring passage concentrations on grasslands elsewhere in Britain and Europe detailed watching of our Levels might reveal some regular flocks.

Occasional birds were seen throughout June and early July in many coastal and inland sites but autumn passage numbers were small with peaks of 20 at Pett Pools on 24 July and 16 at Rye Hbr. on 5 and 10 Aug. Only 9 were noted in Sept., none in Oct. but late singletons were at Pagham Hbr. on 4 Nov. and Arundel WFT on 15 Nov.

199. **CURLEW** *(N. arquata):*—The estuary counts were:

	1984						*1984*	*1985*		
	Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
County totals	*1023*	*1437*	*1321*	*1664*	*2222*	*1515*	*1811*	*1134*	*712*	*1597*
Chichester Hbr.	727	1223	975	1285	1717	1145	1190	816	356	990
Pagham Hbr.	266	183	297	290	249	248	443	236	311	437
Pett Levels	nc	nc	nc	84	246	82	70	nc	30	38
Rye Hbr.*	nc	250	nc	550	350	593	333	nc	nc	nc

*Nocturnal roost which includes some from Pett Level and Romney Marsh.

Small numbers, mainly 10-40, were noted in both winter periods at Bracklesham Bay, the Cuckmere, the Midrips and Newhaven Tidemills. From late Feb. to 19 May, but mainly late Mar. and Apr., singles or small groups were seen on several inland and coastal sites. Very few were observed flying E offshore with totals of 88 at Brighton Marina and 59 at Worthing.

Birds were noted in two sites on Ashdown Forest in the breeding season, at least 1

attempted to breed but sadly was burnt to death while sitting on the nest during a severe fire on 22 Apr. which devastated large areas. First returning birds were noted at Berwick on 18 June when 160 were also back in Chichester Hbr.; here numbers increased rapidly to 580 by 2 July. Occasional birds were noted at 8 inland sites with Dec. sightings at Wepham Down and West Chiltington.

201. **SPOTTED REDSHANK** *(Tringa erythropus):*—Approximate monthly totals were:

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
County totals	*7*	*4*	*5*	*8*	*11*	*9*	*9*	*27*	*29*	*2*	*5*	*2*
Chichester Hbr.	6	2	2	4	—	5	6	3	12	—	2	1
Pagham Hbr.	1	2	3	1	1	1	1	3	6	2	1	1
Rye Hbr.	—	—	—	1	6	1	1	5	4	—	1	—

As usual all wintering birds were in the 2 western harbours, with most records elsewhere falling between 27 Apr. and 22 Sept. The very short time spent (by females) on their breeding grounds is exemplified by the records with 2 birds still at Rye Hbr. on 18 May yet the first returning bird there on 11 June and at Pagham Hbr. on 10 June; on 15th there were 5 on Thorney Deeps and on 20th 1 at Waltham Brooks. Autumn sightings included up to 3 birds at Waltham Brooks from 29 July to 9 Aug., up to 4 at Weir Wood Res. 14-22 Sept. and 5 at Bewl Bridge Res. on 21 Aug. An unusual sighting was 1 at Waltham Brooks on 29 Nov.

202. **REDSHANK** *(T. totanus):*—The estuary counts were:

	1984						*1984*	*1985*		
	Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
County totals	*1929*	*2743*	*1855*	*2007*	*1274*	*3057*	*2558*	*1905*	*1693*	*2063*
Chichester Hbr.	1265	2230	1291	1615	832	2437	1893	1031	1116	1317
Pagham Hbr.	403	294	325	122	211	319	392	426	367	469
Rye Hbr.	53	55	104	159	64	140	100	304	70	165
R. Adur	115	110	73	58	60	80	93	110	70	60
Cuckmere	59	31	23	41	52	33	49	7	18	27

On the R. Adur counts on other dates revealed a peak of 158 on 10 Nov. and on the Cuckmere 115 on 21 Dec.

Breeding season records revealed 82 pairs but not all breeding areas were counted:—

Pulborough Brooks	4-5 pairs	Pagham Hbr.	11 pairs
Amberley SSSI	12 pairs	Adur Levels	2 pairs
Waltham Brooks	6 broods	Lewes Brooks	2 pairs
Fittleworth Valley	1 pair	Combe Haven	1 pair
Burpham	2 pairs	Rye Hbr.	28 pairs
Arundel WFT	4 pairs	Midrips	7-8 pairs

However the depressed population levels noted by the survey in 1982 (*SxBR* 35:30) have changed little save for an increase of 5 pairs at Rye Hbr.

204. **GREENSHANK** *(T. nebularia):*—Approximate monthly totals were:

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
County totals	*2*	*3*	*2*	*37*	*48*	*7*	*80*	*192*	*163*	*90*	*10*	*3*
Chichester Hbr.	2	3	1	3	2	1	60	70	124	75	9	3

These include 11 noted flying E off the coast in Apr. and 18 in May, a good passage. The main spring passage concentrations were 7 at Rye Hbr. and 6 on the Midrips.

The few summering individuals make it difficult to determine the start of autumn migration but a summer plumaged adult was at Chichester GP on 21 June. By 7 July 9 were on Thorney Deeps and on 10th 6 were at Pagham Hbr. At the end of the month 5 were on the Lewes Brooks and the flock at Thorney Deeps had grown to 60. The peak passage was in Aug., though this was due mainly to a large, compact flock of 48 at Camber on 2nd. Apart from the Thorney flock few were seen after Sept. and again all wintering individuals were on Chichester Hbr.

208. **GREEN SANDPIPER** *(T. ochropus):*—A good year for this species, the approximate monthly totals being:

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
9	11	8	14	4	14	48	65	49	34	19	23

The July-Oct. and annual totals of birds recorded were 166 and 236 with respective 3

year moving averages of 166 and 242 continuing the upward trend in records since 1975 (see *SxBR* 33:29). Once again May produced the fewest number of records.

No more than 3 were seen together until 6 at Chichester GP on 17 June, with 15 there and 11 at Waltham Brooks in mid-July. Numbers at these localities remained high throughout Aug. and up to 5 remained at Chichester GP until the end of the year. Elsewhere notable records were 8 at Thorney on 1 Sept., 7 at Darwell Res. on 16 Sept. and 12 there on 14 Oct.

209. **WOOD SANDPIPER** *(T. glareola)*:—Recorded in well above average numbers, the monthly totals being:

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
—	—	—	1	5	1	4	22	11	—	—	—

Spring records were of singles at Waltham Brooks from 28 Apr.-9 May, at Arundel WFT and the Midrips on 4 May, N at Birling Gap on 13th and Boreham Street on 18th.

First of the autumn was 1 at Waltham Brooks on 27 June with 1 at Rye Hbr. from 2 July. Widely scattered singles were reported from late July to early Sept. with 2 at Waltham Brooks in early Aug. At Pett Pools there were 3 from 7-9 Aug., with 2 from 10-14th and singles to 19th. On 31 Aug. 1 was seen at Chingford Pond. The last of the year were 2 at Litlington on 11 Sept. and 2 at Rye Hbr. on 23rd.

211. **COMMON SANDPIPER** *(Actitis hypoleucos)*:—A very good year for this species, the approximate monthly totals being:

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2	2	45	95	11	106	213	86	12	2	4

Wintering individuals were recorded at Ambersham on 26 Jan. and on the Cuckmere and at Steyning on 1 Feb. One on the Cuckmere on 19 Mar. was probably an early migrant as was 1 at Arlington Res. on 30th. After a few records in mid-Apr. spring passage was heavy, the last being 4 at Bewl Bridge Res. and 1 at Brighton Marina on 3 June. Of note were 12 on the Arun on 12 May and an influx between 16-18th with 6 at each of Ardingly Res., Weir Wood Res. and Boreham Street, 4 at Barcombe Res. and Ashburnham and 1 on Falmer Pond from 17-30th.

First returning in the autumn were singles at S. Chidham and Sidlesham Ferry on 22 June, but few were noted until 6 July when 14 were at Chichester GP, with 10 at Waltham Brooks on 7th. Good numbers were reported throughout Aug. and into early Sept., concentrations of note being 24 between Lewes and Newhaven on 11 Aug., 14 flying out to sea at Cuckmere Haven on 25th, 25 at Chichester GP on 27th and 16 between Southease and Newhaven on 15 Sept. Few were seen after mid-Sept., the last of the autumn being on 13-14 Oct. with 1 at Darwell Res., 2 at Cuckmere Haven, 2 over Ashcombe, Lewes and 5 at Bewl Bridge Res. One remained at the last into Dec. with singles at Glynde in Nov. and at Thorney, R. Arun and Pevensey Levels in Dec.

213. **TURNSTONE** *(Arenaria interpres)*:—The estuary counts were:

	1984						*1984*	*1985*		
	Jan.	Feb.	Mar.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
County totals	*575*	*561*	*416*	*316*	*669*	*349+*	*1028*	*635*	*855*	*882*
Pagham Hbr.	340	376	267	202	255	42+	545	329	373	341
Glyne Gap	nc	nc	nc	nc	135	79	97	138	276	90
Rye Hbr.	—	—	1	10	1	4	3	4	8	215
Chichester Hbr.	78	104	58	17	141	59	180	104	57	93
Pevensey Bay	150	80	90	nc	nc	110	114	53	123	140
Pett Levels	nc	nc	nc	86	133	48	85	nc	18	2

Counts for the winter 1984-85 were the most comprehensive yet for this species and showed that the Glyne Gap flock is an important one. The 545 at Pagham Hbr. is the largest concentration yet noted in the county. During the first half of May up to 300 roosted at Rye Hbr. The E passage along the coast involved 165 at Worthing, 77 at Selsey, 70 at Brighton Marina and 47 at Beachy Head; the movement had ceased by 24 May.

About 22 summered at Rye Hbr. and 8 in Chichester Hbr. and numbers increased in the third week of July. At Rye Hbr. the high tide roost peaked at 342 in mid-Aug. and 245 on 2 Sept. but virtually all had left by 10th. On 15 Nov. 334 were seen on Pett Levels at high tide.

There were 3 inland records of single birds, at Bewl Bridge Res. on 29 Apr., at Weir Wood Res. on 17-18 May and at Waltham Brooks on 5 Aug.

214. **WILSON'S PHALAROPE** *(Phalaropus tricolor)*:—A female in summer plumage at Rye Hbr. 30 June-1 July (BHB, BJY *et al.*) and an immature at Sidlesham Ferry on 12 Oct. (CMJ, BJ, PWM *et al.*). Both have been accepted by *British Birds* and form the fifth and sixth county records.

216. **GREY PHALAROPE** *(P. fulicarius)*:—A total of 12 was noted. Single birds were seen at Splash Point, Seaford on 12 Sept. (RB, RJC, PJW), Selsey Bill on 14th (RB, BM), Langney Point from 22-26th (JFC, JC *et al.*), Sidlesham Ferry from 4-12 Oct., when sadly it died (BJ, CMJ *et al.*) and on the Cuckmere Lagoon on 4th (WJMS). One at Littlehampton on 10 Oct. (ACH) was possibly the same as 1 E past Worthing later in the day (JAN). Several were seen in late Oct., being 2 at Brighton Marina on 22nd, with another there on 25th (NAGL) and 1 at Pett Pools from 24-27th (OWF, BHF *et al.*). At Rye Hbr. separate individuals were seen on 20-25th and 25-27th.

217. **POMARINE SKUA** *(Stercorarius pomarinus)*:—The first record was 1 E at Brighton Marina on 21 Apr. Easterly passage totals were: Selsey Bill 25 (peak 8 on 29 Apr.), Worthing 76 (peak 64 on 14 May), Brighton Marina 133 (peak 109 on 14 May) and Beachy Head 9. Analysis of the data indicates that a minimum of 161 birds was involved, of which 14 were in Apr. and 146 in May. One off Lancing on 2 June (AJP) was very late for spring passage.

There were 6 autumn records. Single birds were recorded at Worthing on 4 dates between 27 Sept. and 28 Oct. There was 1 E at Beachy Head on 7 Oct. and an adult W at Selsey Bill on 22 Oct.

218. **ARCTIC SKUA** *(S. parasiticus)*:—One flew E at Worthing on 29 Feb. (RAI). Easterly passage totals between 23 Mar. and 5 June were: Selsey Bill 78 (peak 10 on 26 Apr.), Worthing 57 (peak 4 on 3 dates), Brighton Marina 80 (peak 10 on 4 May) and Beachy Head 53 (peak 10 on 4 May). It is difficult to determine the amount of duplication in these records, but at least 136 birds were involved, 1 in Mar., 62 in Apr., 62 in May and 11 in June. Summer records were of 2 off Selsey Bill on 27 June, 1 off Rye Hbr. on 14 July and 3 E at Brighton Marina on 26 July.

Autumn passage was poor with some 81 birds recorded from the coast between 5 Aug. and 18 Nov. Most occurred on 22 Oct. when there were 10 W at Worthing and 2 W at Selsey Bill.

219. **LONG-TAILED SKUA** *(S. longicauda)*:—At Brighton Marina a superb adult flew E on 16 May (JPS, MLC). This is, despite the many hours of watching the spring sea passage, the first to be seen at this time of the year since 1942 and only the seventh recorded this century.

220. **GREAT SKUA** *(S. skua)*:—One flying N over Ashdown Forest on 7 Jan. (DJWS) was later seen at Weir Wood Res. where it remained until the following day (RH, BMM, DCM *et al.*). A single bird was seen at Rye Hbr. on 5 Feb. and an adult was found dead at Pagham Hbr. on 3 Mar. Spring passage occurred between 10 Apr. and 11 June with birds recorded flying E as follows: Selsey Bill 7, Worthing 5, Brighton Marina 11 and Beachy Head 16. Analysis of these records indicates that a minimum of 24 birds was involved, of which 21 were in Apr., 2 in May and 1 in June.

In the autumn a total of 25 was reported from the coast between 8 Aug. and 28 Oct. Most occurred on 22 Oct. when there were 3 W at Worthing.

222. **MEDITERRANEAN GULL** *(Larus melanocephalus)*:—Another remarkable year when at least 68 individuals were noted comprising 31 adults, 18 sub-adults and 19 first year birds. The minimum monthly totals were:

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
4	4	10	21	9	7	4	2	5	6	3	5

The pattern of these records was similar to 1983, particularly a marked spring passage and the absence of individuals staying in one area for a long period, except for an adult seen at Pett between 29 July and 19 Sept. Two pairs were noted in the summer but neither attempted to breed.

Inland records were of an adult at Arlington Res. on 14 Feb., 2 first years at Small Dole refuse tip on 21 Feb., an adult N at Lewes on 7 Apr., an immature at Arundel WFT on 23 May, an adult at Waltham Brooks on 28 July and an adult roosting at Weir Wood Res. on 14 Jan. and between 16 and 29 Dec.

225. **LITTLE GULL** *(L. minutus):*—Between 19 Jan. and 21 Feb. 7 were seen at coastal sites and an adult flew S over the Upper Adur Levels on 29 Jan. Spring passage started on 23 Mar. and at least 289 had passed E along the coast by the end of May. The spring totals of 37 at Selsey Bill, 43 at Worthing, 103 at Brighton and 190 at Beachy Head show how this passage was best observed in the east. The peak movements at Beachy Head were 70 on 21 Apr. and 80 on 1 May. During the spring 30 were noted at inland sites, the largest flock being 11 at Bewl Bridge Res. on 1 May. Summering individuals were noted at Rye.

Autumn passage started in July increasing to a peak in late Oct. and early Nov. Only 4 birds were seen at inland reservoirs but small numbers were recorded at coastal sites on several days until 8 Dec. with a peak of 12 W at Worthing and 16 W at Selsey Bill during strong onshore winds on 28 Oct. These movements however, were overshadowed by unusual records from Rye where small flocks were seen daily between 6 and 9 Nov. flying SW and out to sea; the maximum of 35 on 9 Nov. A first year and an adult were recorded in Chichester Hbr. until 27 Dec.

With over 520 birds seen, 1984 was a record for Little Gulls in Sussex, and the monthly minimum totals were:

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	3	33	162	140	4	2	7	17	28	99	24

226. **SABINE'S GULL** *(L. sabini):*—An adult inside Brighton Marina on 28 Sept. (NAGL).

228. **BLACK-HEADED GULL** *(L. ridibundus):*—There was no co-ordinated winter roost count but the peak numbers at the inland roost sites were 7,000 at Arlington Res. and 800 at Darwell Res. on 15 Jan. and 10,000 at Bewl Bridge Res. on 29 Feb. where there were still 5,000 on 23 Mar. Most of the wintering gulls departed in late Mar. and thereafter spring coastal movements were recorded from both Worthing (total 6,595 E and 205 W) and Brighton Marina (total 3,691 E and 5,336 W). The peak movements noted at these sites were very different — 3,000 E at Worthing on 29 Mar. *cf* 4,500 W on 1 Apr. at Brighton.

The breeding colony at Rye increased further to 311 pairs and at least 1,000 birds fledged from the Stakes Island colony in Chichester Hbr., see the paper on pages 65-71.

Returning adults were noted at Bewl Bridge Res. on 7 July, the numbers then increased throughout the county with counts of 1,500 at Patcham on 29 July, 2,000 at Lavant and 3,000 at Shoreham on 19 Aug. There were few roost counts at the end of the year except at Rye where 10,000 were counted between Aug. and Nov. and 6,000 during Dec.

233. **COMMON GULL** *(L. canus):*—There was no co-ordinated winter census but the 7,000 roosting at Arlington Res coupled with 1,200 at Darwell Res. on 15 Jan. exceeds the total counted throughout the county in Jan. 1983. Regrettably there were no other roost counts at the time. At Bewl Bridge Res. 400 roosted on 23 Mar. but the spring migration was most evident on the coast where 500 were noted at Birling Gap on 8 Mar. and a total of 2,600 passed E at Brighton Marina between Mar. and May. Interestingly the peak movement at Brighton occurred on 1 Apr. when *c.*1,000 passed W. A roost of immatures built up to 500 at Rye during Apr. and May but then declined to 80 during June. Summering adults were scarce with singles noted with the Black-headed Gull colony in Chichester Hbr. and at Chichester GP, and 3 seen at Rye on 16 June. Returning adults were recorded after 7 July and thereafter the only noteworthy counts were 300 at Hollingbury Golf Course on 10 Nov. and 160 at Arlington Res. on 15 Dec.

A partially leucistic individual was again recorded at Shoreham on 22 Apr.

234. **LESSER BLACK-BACKED GULL** *(L. fuscus):*—The largest gatherings in the winter were 50 at Chichester GP during Jan. and an unusual count of 80 at Darwell Res. on 15 Jan. All, except 10, of the flock of 250 at South Heighton on 24 Mar. were the pale mantled race (*graellsii*) whereas the rest of the spring records, although involving smaller numbers, were mainly of the Scandinavian race *fuscus*.

A pair bred in Hastings but elsewhere summering adults were scarce with up to 5 amongst 50 immatures at Rye during May, only 1 with 70 immatures at Chichester GP on 14 June but none there on 28 June when 200 immatures were counted. The only large autumn gathering was also at Chichester GP when 230 were noted on 29 Oct.

235. **HERRING GULL** *(L. argentatus):*—Although widespread and numerous during the winter the only count was 71 W at Brighton during ½ hour on 18 Jan. During spring 80 flew NW over Bewl Bridge Res. on 2 Mar. and numbers at Brighton Marina increased to 120 by 25 Apr. with 200 noted offshore there on 23 May.

The breeding numbers and distribution are described in the paper on pages 65-71. Roost counts at Rye included 550 immatures on 22 June, 140 on 10 July and 600 on 9 Nov.

The yellow-legged race, *L. a. michahellis,* was again recorded during the summer and autumn. In the Adur Valley up to 63 individuals were noted feeding on Small Dole refuse tip and roosting at Shoreham, whereas the 35 seen feeding on the Chichester refuse tip probably roosted at Pagham Hbr. Elsewhere few were seen and the minimum monthly totals were:—

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2	1	1	—	—	2	27	92	33	66	5	2

236. **ICELAND GULL** *(L. glaucoides):*—A remarkable year with the largest annual total yet recorded for the county. There appear to have been 7 individuals compared with only 10 between 1962 and 1983; all were seen in the early months of the year, and are listed chronologically. An adult at Chichester GP between 17 and 21 Jan. (EDL, ARK *et al.*); a first winter at Church Norton on 26 Feb. (PJ); a first summer at Beachy Head on 23 Mar. (RDME, RKH *et al.*) and an adult there from 25 Mar. to 1 Apr. (RDME *et al.*); and a first summer at Southwick on 5 Apr. (KW). The second summer at Hastings on 25 Apr. (MRG) was probably the individual noted at Brighton Marina on 5 May (JPS) and Pebsham tip between 18 and 20 May (KJ, SCR). Finally, a first summer at Worthing on 25 Apr. (JAN, RJS) was the same bird which flew W past Widewater (AJP, RHE-W) and Worthing (BRC *et al.*) on 6 May.

237. **GLAUCOUS GULL** *(L. hyperboreus):*—**1981**:—There were 2 first winter birds at Hastings in Feb. and another first year there on 26 Dec.

1982:—The bird in the Hastings area was present from 9 Jan.

1984:—Unusually high numbers occurred in many parts of Britain and Ireland during the winter and this influx produced a confusing abundance of sightings which suggest a record 25 individuals occurred in the county. Minimum monthly totals were:

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
11	7	10	6	4	—	1	1	1	2	2	2

Although recorded at several sites during the early months the highest numbers were seen at Chichester GP where 5 different birds were noted in Jan. Observers familiar with these saw other individuals at Littlehampton and Pagham Hbr. At least 2 birds, a first year at Portfield refuse tip and a third year in the Eastbourne area, remained between Jan. and Apr. but the records suggest many of those recorded in Jan. departed in Feb. to be followed by an unusually large spring passage between Mar. and May. Most records involved immatures but single adults were noted at Chichester GP on 14 Jan., at Arundel WFT on 3 Mar. and at Pebsham refuse tip between 30 Apr. and 6 May.

A first summer bird was noted at Church Norton on 15 July and was regularly seen between Pagham and Selsey until 11 Nov. At Rye an adult was found dead on 21 Oct. and a first year noted on 12 Dec., but these, coupled with the adult seen between Pebsham refuse tip and Langney Point in late Dec., were the only records for the end of the year.

238. **GREAT BLACK-BACKED GULL** *(L. marinus):*—Regularly seen at coastal sites although the only notable winter gathering was 160 at Brighton Marina on 12 Jan. Many

immatures remained during the spring and summer with counts of 200 at Rye on 10 May, 120 at Pilsey on 13 June and 200 in Chichester Hbr. on 5 July. Later in July the numbers of adults increased markedly as 120 were noted with 80 immatures at Camber on 21 July and the roost of 160 at Rye during Aug. comprised mainly adults. The regular pre-roost gathering on the R. Adur at Shoreham gradually increased from 80 on 25 July, to 150 by 19 Sept., 215 on 16 Oct. and 260 on 12 Nov. A dusk count in the Rye area on 9 Nov. revealed 1,210 but elsewhere 170 at Saltdean on 18 Dec. was the only noteworthy count. Far fewer were noted inland with winter records from 4 of the county's reservoirs.

240. **KITTIWAKE** *(Rissa tridactyla):*—In Jan. a small E movement was noted from Selsey Bill on 10th and 11th, but on 16th 200 flew W at Bognor and 315 at Selsey Bill followed by 65 W at Worthing on 17th. On 26 Jan. the movement was reversed with 367 E off Hove and 111 E off Worthing during short watches. The spring movements were equally diverse; the largest numbers were seen from Brighton Marina where the total seen between Mar. and June was 1,736 E and 150 W.

The breeding colony on the cliffs between Newhaven and Peacehaven continued to flourish with counts of 499 occupied nests on 15 June and 550 nests still occupied on 11 Aug.

Throughout the year Brighton Marina was used as a regular resting site, the peak counts occurring in the autumn with 110 on 2 Oct. However, the largest autumn numbers were seen moving W during strong S to SW winds; the best dates were on 22 Oct. with 522 at Selsey Bill and 327 at Worthing, and on 28 Oct. with 167 at Selsey Bill and 574 at Worthing. This W movement continued on a smaller scale until 17 Dec.

During the year there were 4 records from inland; adults at Bewl Bridge Res. on 18 Mar. and 4 Apr., and single immatures at Arlington Res. on 28 July and 3 Sept.

242. **GULL-BILLED TERN** *(Gelochelidon nilotica):*—One flew E at Ferring on 26 Apr. (RJS); it has been accepted by *British Birds.*

243. **CASPIAN TERN** *(Sterna caspia):*—One at Rye Hbr. on 9-10 July (PP, BJY, PFB) has been accepted by *British Birds.*

245. **SANDWICH TERN** *(S. sandvicensis):*—First recorded at Brighton Marina on 20 Mar. and at Selsey Bill and Worthing on 22 Mar. Easterly passage totals at the main localities were: Selsey Bill 2,458 (peak 216 on 25 Apr.), Worthing 2,813 (peak 272 on 18 Apr.), Brighton Marina 4,151 (peak 685 on 18 Apr.) and Beachy Head 1,366 (peak 217 on 14 Apr.). Analysis of these records indicates that a minimum of 5,287 birds was involved of which 125 were in Mar., 3,742 in Apr., 1,174 in May and 246 in June.

At Chichester Hbr. 18 pairs bred, raising 12-13 young to the flying stage. At Rye Hbr. LNR, where breeding was attempted for the first time, the first birds were recorded on 30 Mar. and 80 were present by 30 Apr. Scraping behaviour was observed in June and 2 nests with eggs were located in July. Activity at both nests had ceased by 4 Aug. and it is unlikely that any young were hatched. Coastal passage in autumn was small, Worthing recording a total of 298 W between July and 12 Oct. There were no inland records.

246. **ROSEATE TERN** *(S. dougallii):*—An adult at Rye Hbr. on 3 July (BY) was the only record.

247. **COMMON TERN** *(S. hirundo):*—At Chichester GP the first birds appeared on 17 Apr. and on the Society's raft on 21 June there were 16-17 pairs, 17 live young and 31 eggs. Breeding success was very good with some 30-40 chicks reaching the flying stage. At Rye Hbr. the first birds appeared on 11 Apr. and 53 were present by 1 May. Incubation commenced on 15 May and the first chicks were seen on 5 June. It was estimated that 73 pairs nested, raising at least 100 young to the fledging stage. Breeding success was also good in Chichester Hbr. where 62 pairs fledged 80-90 young.

248. **ARCTIC TERN** *(S. paradisaea):*—Few records were received. One flew E at Worthing on 20 Apr. At Lancing there were 2 E on 23 May and 24 E on 2 June. A single bird

was seen at Chichester Hbr. on 15 Sept. and there were up to 2 in Brighton Marina between 24 Sept. and 12 Oct. An immature was present at Chichester GP between 4-7 Oct.

247/248. **COMMON/ARCTIC TERN** *(S. hirundo/paradisaea):*—Easterly passage totals at the main localities between 6 Apr. and 21 June were: Selsey Bill 4,027 (peak 845 on 5 May), Worthing 5,093 (peak 996 on 1 June), Brighton Marina 7,810 (peak 646 on 1 June) and Beachy Head 3,674 (peak 542 on 25 Apr.). Analysis of these records indicates that a minimum total of 10,326 birds was involved, of which 2,394 were in Apr., 5,666 in May and 2,266 in June.

Autumn passage was very light. At Worthing a total of 191 W was recorded between July and 28 Oct. (peak 33 on 11 Sept.). The last recorded was 1 at Pagham Hbr. on 3 Nov.

251. **LITTLE TERN** *(S. albifrons):*—First recorded on 11 Apr. at Worthing. Easterly passage totals at the main localities were: Selsey Bill 634 (peak 68 on 5 May), Worthing 636 (peak 68 on 5 May), Brighton Marina 336 (peak 25 on 17 and 23 May) and Beachy Head 169 (peak 28 on 26 Apr.). Analysis of these records indicates that a minimum total of 877 birds was involved.

In Chichester Hbr. 25 pairs nested, raising at least 17 young to the flying stage. At Pagham Hbr. 18 pairs were present in June but, once again, no young were raised. At Rye Hbr. LNR 66 pairs nested, rearing some 48 chicks to the fledging stage. The number of birds seen on autumn passage was very small. The last of the year was a single bird flying W at Worthing on 27 Sept.

252. **WHISKERED TERN** *(Chlidonias hybridus):*—A summer-plumaged individual passed Pagham Hbr. on 2 June (EDL). It has been accepted by *British Birds* and is the sixth for the county.

253. **BLACK TERN** *(C. niger):*—First recorded in spring on 21 Apr. at Chichester GP and Selsey Bill. Easterly passage totals at the main coastal localities were: Selsey Bill 58 (peak 19 on 30 Apr.), Worthing 30 (peak 12 on 15 May), Brighton Marina 68 (peak 24 on 16 May) and Beachy Head 24 (peak 9 on 25 Apr.). Analysis of these records indicates that a minimum total of 107 birds was involved, of which 22 were in Apr., 74 in May and 11 in June. Birds were recorded in small numbers at 7 inland localities between 21 Apr. and 3 June with a maximum of 8 at Ardingly Res. on 24 Apr. One was present at Rye Hbr. on 10 June.

Return passage commenced in July with singles at Pett Level on 18th and Rye Hbr. on 25th, and 2 in Chichester Hbr. between 29th and 31st. During Aug. some 69 were reported (maximum 20 at Rye Hbr. on 2nd); whilst in Sept. the total was about 24. In Oct. single birds were seen at Weir Wood Res. on 4-5th and at Ardingly Res. on 6th.

254. **WHITE-WINGED BLACK TERN** *(C. leucopterus):*—One in almost full summer plumage at Barcombe Res. on 19 May (RDME, RSK, MK *et al.*) and a juvenile on the lower R. Cuckmere from 16-28 Aug. (SK, TWP *et al.*) have been accepted by *British Birds.*

255. **GUILLEMOT** *(Uria aalge):*—A poor year; reported from various coastal localities as follows:

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Dead	2	1	2	—	—	—	—	—	—	—	—	8
Oiled	1	4	—	—	—	—	—	—	—	—	1	2
Dead and oiled	—	1	—	—	—	—	—	—	—	—	—	—
Others	8	6	4	—	13	2	—	2	15	6	20	12

257. **RAZORBILL** *(Alca torda):*—A poor year; reported from various coastal localities as follows:

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Dead	1	—	1	1	—	—	—	—	—	—	—	—
Oiled	—	—	—	1	—	—	—	—	—	—	1	—
Dead and oiled	—	—	—	—	—	—	—	—	—	—	1	—
Others	3	3	1	2	3	—	—	1	7	6	12	3

260. **LITTLE AUK** *(Alle alle):*—An unusual number of records but few compared with the wreck on the east coast. Single birds were found dead at Brighton (PB) and near Finchdean on 17 Jan. (MB, GW). An injured bird was found at Lodsworth on the same date (per GDM) and 1 was seen at Worthing on 18 Jan. (RAI).

In autumn, 1 at Bewl Bridge Res. on 29 Oct. was found dead on 4 Nov. (RM, IS). A single bird was seen in Chichester Yacht Basin on 2 Nov. (IM, MM).

261. **PUFFIN** *(Fratercula arctica):*—Singles flying E at Beachy Head on 25 Apr. (RKH) and Brighton Marina on 13 May (JPS) were the only records.

AUK SPECIES:—Spring movements at Selsey Bill totalled a very poor 3 E and 5 W during Apr.-May whilst at Worthing there were 4 E in Apr. and 6 E and 7 W in May. At Brighton Marina 87 E were logged during 21 Apr.-21 June and at Beachy Head 41 were recorded in Apr., 17 in May and 16 in June.

Few records were received for the latter part of the year. At Worthing 14 were seen in Sept., 2 in Oct., 63 in Nov. and 5 in Dec. The peak movement there occurred on 8 Nov. when 21 flew E.

Cat. C. **RING-NECKED PARAKEET** *(Psittacula krameri):*—This exotic species, once feared likely to become a pest, still hangs on precariously. One pair nested successfully in a beech tree, now felled, in Hollingbury Woods, Brighton; display was seen on 1 Jan. and young emerged from the hole on the early date of 18 Mar. Here a maximum of 5 were seen early and 8 late in the year. Elsewhere singles were seen at The Dover, Angmering on 15 July, at Shoreham on 24 Aug., Church Norton on 4 Nov. and irregularly from 21 Oct. to 31 Dec. at Hassocks.

264. **STOCK DOVE** *(Columba oenas):*—Few large flocks were noted with the largest early in the year being 150 at Selham, 42 at Wiggonholt and 45 on the late date of 7 May at Horam. At the end of the year it was similarly scarce with 100+ on the Lewes Brooks and 55 at Thorney. Cooing was heard from 20 Feb. and breeding birds were scattered throughout the county but the only systematic count was of 5 pairs in 60 *ha* at West Chiltington. At Possingworth Park 1 pair chose to nest alongside a long-dead Moorhen in a nest box!

265. **WOOD PIGEON** *(C. palumba):*—Numbers were unexceptional with 1,000 at Beachy Head on 8 Mar. and 800 in the Brede Valley on 13 Jan. being the only large counts. Between 22 Mar. and 23 Apr. 4 came in from the sea at Brighton Marina. Autumn passage was noted from mid-Oct. to 11 Nov. but involved fairly small flocks except for 1,000 at Beachy Head on 3 Nov., and 3,500 on 11th flying S out to sea in a single flock.

266. **COLLARED DOVE** *(Streptopelia decaocto):*—The largest flocks were found where grain or seeds are plentiful. At Rye Hbr. grain store the Jan. maximum was 320, with 250 in Feb. and still up to 200 in Apr. and May. Bentley Wildfowl Reserve attracted 200 in winter and a garden in Brighton where seed was supplied, obviously liberally, had 37 early and 38 late in the year. Seven migrants, most moving N, were seen at Brighton Marina 15-25 Apr. Little extensive breeding data were available but the long season was illustrated at Maynards Green where young were still being fed on 17 Nov. Late in the year the main flocks were 200 at Cocking, 160 near Pagham Hbr., 100 at Rye Hbr. and 93 at Hassocks.

267. **TURTLE DOVE** *(S. turtur):*—Early birds were seen on 11 Apr. at Church Norton, 15th at Poling and 17th at Chanctonbury. A more general arrival took place between 21 and 29 Apr. It is a difficult species to census when breeding so was again under-recorded; several observers believed the numbers to be low. In autumn the passage was virtually non-existant with a maximum of 10 at Rye Hbr. in Aug. Late birds were seen in several areas to 7 Oct. with singles to the 19th at Hastings and 21st at Beachy Head.

271. **CUCKOO** *(Cuculus canorus):*—First recorded at Chichester GP on 12 Apr. There were arrivals on each of the next seven days, and widespread reports on 20th and 21st.

Among patchy records for May and June, there were concentrations of up to 5 at Rye Hbr. LNR, Ardingly Res. and near Lewes (feeding on brown-tail caterpillars). Up to 8 were at Combe Haven SSSI and Bewl Bridge Res. Dunnocks were again the foster parents in the 2 cases reported.

Except for a very late straggler mobbed by small birds at Marley Common on 14 Oct., the last was noted at Selmeston on 15 Sept.

274. **BARN OWL** *(Tyto alba):*—Records for this species are tabulated as follows:

	Breeding Season				*Breeding Success*		
Year	*Known pairs*	*Probable pairs*	*Birds present*	*Total sites*	*Young raised*	*No. of pairs successful*	*Winter birds*
1983	11	12	21	44	24	7	30
1984	18	9	18	45	24	9	16

The records show some significant variations in breeding status. Whereas populations in the Selsey and Lewes areas were maintained, those in former well-established areas have declined, notably Blackdown, Slinfold and Findon, but there was an increase of records from the east of the county. Of 7 roadside fatalities (1983 nil) 1 bird had been ringed at Fishbourne in 1983 and 1 at Bosham in the current year. The Bosham pair elected to nest in a hide set up to observe them and raised 3 young. An unusual record came from the Brighton football ground at Hove, where 2 observers reported a bird flying over the ground. (Speculation that this may have been a Fearful Owl *(Nesasio solomonensis)* has not been discounted!)

279. **LITTLE OWL** *(Athene noctua):*—Records are tabulated as follows:

	Breeding Season				*Breeding Success*		
Year	*Known pairs*	*Probable pairs*	*Birds present*	*Total sites*	*Young raised*	*No. of pairs successful*	*Winter birds*
1983	48	18	38	104	45	17	29
1984	43	20	40	103	25	12	21

Although fewer young were raised than in 1983, the table indicates that the recent recovery has been maintained; breeding success is probably under-recorded. Records were widespread across the county, and the species was particularly well-established around Ashcombe Bottom, Pulborough, Storrington, Findon, Bewl Bridge Res. and Plumpton. Although 4 nests failed, many new sites were reported and 2 recolonised after desertion through Dutch elm disease. The predation of Little Terns at Rye LNR continued.

280. **TAWNY OWL** *(Strix aluco):*—Records are tabulated as follows:

	Breeding Season				*Breeding Success*		
Year	*Known pairs*	*Probable pairs*	*Birds present*	*Total sites*	*Young raised*	*No. of pairs successful*	*Winter birds*
1983	29	15	11	55	21	11	30
1984	33	19	35	87	27	12	22

An increase to 87 breeding season sites highlights the fluctuating fortunes of this species, generally accepted as the county's commonest owl. The corresponding figure for Little Owl of an average of 100 breeding season sites each year since 1981 is an interesting comparison. Reports were widespread throughout wooded areas but a healthy total of 11 records were from urban centres. At Bosham a Stock Dove usurped a failed nest and laid 3 eggs therein, whilst the fate of 2 of 3 juveniles ringed at a Weir Wood Res. site remains a mystery, 2 rings later being found in the nest. Nine road deaths were reported, 5 on the A27 near Patching.

281. **LONG-EARED OWL** *(Asio otus):*—Although there was no suggestion of breeding, a good number of records. Up to 2 May 12 birds (including 1 dead) were reported from 9 sites (3 downland, 6 coastal or river levels). One of these was seen at Brighton Marina on 16 Mar. being chased out to sea by carrion crows. On 2 Oct 1 was roosting on the river mouth light at Rye Hbr. in strong winds. After this 9 birds were recorded up to the end of the year at 6 sites (3 downland, 3 coastal).

282. **SHORT-EARED OWL** *(A. flammeus):*—Approximate monthly totals were:

Jan.	Feb.	Mar.	Apr.	May	Aug.	Sept.	Oct.	Nov.	Dec.
17	15	7	8	3	1	7	10	15	21

The numbers at both ends of the year were about average with the largest concentration at Thorney Island where there were 10 in Jan. and 6 in Dec. One flew E at Widewater on 9 Mar. and one arrived at Selsey Bill on 10 Apr. Others seen over the sea were at Beachy Head on 20 Sept., Selsey Bill 27 Sept., Brighton Marina 21 Oct. and Cuckmere Haven 10 Nov.

284. **NIGHTJAR** *(Caprimulgus europaeus):*—A very early bird was heard at Bewl Bridge Res. on 22 Apr. but few were noted until mid or late May. During the breeding season 62 males were located including about 20 in Ashdown Forest, this compares well with previous counts. Apart from single males briefly churring at 2 different sites on the East Sussex Downs on single dates and 2 at Bewl Bridge Res., all the other 38 were in West Sussex. One regular site was not occupied. Churring was still heard as late as 31 Aug. near Midhurst. Migrants were noted over a garden in Seaford on 1 and 14 Sept. and in Balcombe Forest on 20 Sept.

289. **SWIFT** *(Apus apus):*—First recorded at Selsey Bill and Roedean on 22 Apr., at Beachy Head on the 23rd and from 24th to 28th scattered widely north to Crawley. The passage was unspectacular but cold NE winds between 5-8 May brought large numbers to Bewl Bridge Res., Weir Wood Res. and 2,000 at Chichester GP, and also the first birds to most colonies. The main arrival took place during 16-23 May.

Few counts were made of colonies but the departures from them were noted on 28 July at St. Leonards, 1 Aug. at Worthing, and between 6-8 Aug. at Crowborough, Pulborough and Storrington. During the summer substantial movements took place on 23 June (when 1,500 flew over Rye Hbr. at dawn, 250 were at Hastings and 150 went W at Brighton Marina) and 28 June, when 500 flew S at Maynards Green and 200 at Hove.

Autumn movements were small with peaks of only 400 at Beachy Head on 4-5 Aug., 800 at Selsey Bill on 13th and 350 over Woodingdean on 14th. Very few were seen in Sept.; latest dates at most coastal sites were 16th-22nd but 6 were at Bewl Bridge Res. on 27th. Singles were seen at Shoreham and Lancing on 7 Oct. A moribund bird was extracted from a hedge by a dog at Sidlesham on 3 Nov. and 1 was at Hunston on 8 Nov.; these very late birds were part of a distinct influx into England during early Nov.

291. **ALPINE SWIFT** *(A. melba):*—One over Selsey Bill on 5 May (PJ *et al.*) has been accepted by *British Birds.*

293. **KINGFISHER** *(Alcedo atthis):*—As with last year a good number of records was received. With mild weather at either end of the year more were found inland than on the coast. Thus in the first 2 months *c.*6 birds were at 6 coastal sites and 20 at 18 inland sites and in the last 2, 12 were at 9 coastal sites and 18 at 14 inland sites. In the breeding season 10 pairs bred at 9 sites and birds were recorded at a maximum of 14 other sites. One pair is known to have produced 15 young from 3 broods.

295. **BEE-EATER** *(Merops apiaster):*—One over Birling Gap, Beachy Head on 25 May (PC, MEN, AQ) has been accepted by *British Birds.*

297. **HOOPOE** *(Upupa epops):*—Eight in spring, an average showing, but none was reported in autumn. In Apr. singles at Sidlesham from 6-9th (MS), Camber on 14th and Bignor for a week from 26th (AR). On 3 May 1 came in at Selsey Bill (DHH, HT) and there were singles in a Brighton garden on 6th (per GET) and another at Selsey Bill on 19th (CRJ), while 2 were at Beachy Head on 10th (RHC, RKH).

298. **WRYNECK** *(Jynx torquilla):*—Two were reported in spring, both in gardens, in Worthing on 29 Apr. and Ashington on 3 May.

A good autumn with 18 recorded between 19 Aug. and 16 Sept. — a welcome change after 2 very poor years. Records were singles at Beachy Head on 19, 22-25, 24-25 and 26-27 Aug.; Balmer Down on 25th; Fishbourne, Arundel and Pebsham on 26th; Barnham and Billingshurst (killed by a cat) on 27th; Ferring Rife 27 Aug.-2 Sept.; Seaford on 28th;

Clapham Street on 30 Aug.-1 Sept.; Church Norton on 31 Aug.-2 Sept. and Uckfield on 1-3 Sept. None was then seen until 1 at Climping on 13 Sept. and the last of the year at Beachy Head from 14-16th.

300. **GREEN WOODPECKER** *(Picus viridis):*—On 5 Apr. 6 were seen together at Seven Pond Creek, Bewl Bridge Res. Approximately 138 pairs, or territorial males, were recorded in the breeding season. Counts in well defined areas were of 5 pairs in 38 *ha* at Stanmer Park, 2 pairs in 60 *ha* at West Chiltington, 7 pairs at Coates Common, 4 pairs at Petworth Park and Ambersham Common and 3 pairs at Hindleap Warren. A survey found the species present in 14 of 50 *Km* squares in TQ33 and 25 of 65 squares in TQ43.

302. **GREAT SPOTTED WOODPECKER** *(Dendrocopus major):*—Singles were seen at Selsey Bill on 27 Jan. and 23 Apr. and Jury's Gap on 26 May — both unusual locations for the species; on 8 Apr. 1 was feeding on the ground and posts on the Adur Levels. Widespread in the breeding season; the only count was of 2 pairs on 60 *ha* at West Chiltington. A survey found the species present in 28 of 50 *Km* squares in TQ33 and 40 of 65 squares in TQ43.

At Beachy Head 2-3 were sighted in Whitbread Hollow in the autumn and 1 was present at Belle Tout on 4 Nov. At the end of the year there was an unusual record of 2 at West Beach, Littlehampton on 8 Dec.

303. **LESSER SPOTTED WOODPECKER** *(D. minor):*—During the breeding season reported from 53 widely scattered localities, including 12 of 50 *Km* squares in TQ33 and 8 of 65 squares in TQ43. At other times of the year reported from a further 19 localities.

310. **WOODLARK** *(Lullula arborea):*—**1983**:—A single near Hastings on 27 Nov.

1984:—One on Lewes Golf Course on 18 Mar. (CH, LEL, RL). From 9 May to 16 June, 1 was singing in a suitable breeding area in East Sussex previously occupied in the 1960s (JSSB, JWH, MSH). In West Sussex up to 3 birds, including 2 singing males were seen on 31 May and 4 July in suitable breeding habitat (MB, EMPS).

311. **SKYLARK** *(Alauda arvensis):*—The largest winter counts were of 276 on Horse Eye Level and at least 250 at Rye saltings in Jan. There were no reports of cold weather movements, little sign of spring passage, and only small autumn movements of up to 80 birds between 11 and 28 Oct. Details of breeding season counts from defined areas appear on pages 48-49.

312. **SHORELARK** *(Eremophila alpestris):*—One was present on sandwashings at Chichester GP 1-17 Jan. (AJP, SPH *et al.*).

313. **SAND MARTIN** *(Riparia riparia):*—First arrivals were very late with birds at Weir Wood Res, Waltham Brooks and Chichester GP on 31 Mar. Spring passage was minute with a maximum of 20 at each of Waltham Brooks on 23 Apr., Bewl Bridge Res. on 3 May and at Barcombe Res. on 28 May.

It had been hoped that birds had slipped unnoticed into the colonies but counts soon revealed a disaster. The Coates Common colony was down from 100 pairs in 1982 to *c.*30 pairs and the West Heath Common colony from 55 pairs in 1982 to 3 pairs. None bred at Rye Hbr. (20 pairs in 1982 and 1983) or Stedham Common (20 pairs in 1982). Six pairs bred at Boxgrove GP, a site not covered before. Nationally, there appears to have been only 29% of the 1983 numbers; in Sussex, colonies were not counted adequately in 1983 but only 17% of pairs present in 1982 returned in 1984. This disastrous position seems to be a result of drought in the Sahel wintering zone combined with appallingly cold and wet weather over the Mediterranean when they tried to migrate north.

In autumn some sites had very few, *e.g.* 50 was the maximum roosting at Hastings and at Rye Hbr. a maximum of 300, less than half the normal, was seen during Aug. and Sept. At Southease there were 100 roosting on 28 Aug. At Chichester GP there were 500+ on 30 Aug. and, most surprisingly, record numbers apparently roosted on Thorney Deeps, with 2,000 on 17 Aug. and 2,500 on 28 Aug. The last were seen on 6 Oct. at Rye Hbr. and there were 2 over Whitbread Hollow, Beachy Head on 13 Oct.

314. **SWALLOW** *(Hirundo rustica):*—The first arrived at Bewl Bridge Res. and Rye Hbr. on 28 Mar. A widespread arrival was seen between 8-15 Apr. when 100 were at Chichester GP. Several areas noted a large movement on 2-3 May and concentrations of 200 were at Rye Hbr. on 21 May and 100 at Barcombe Res. on 28 May. There were reports of several deaths at Rye in the cold weather of 17 May. Very few counts were made of breeding numbers but comments, without exception, indicated a very low population.

Apart from 2,500 roosting on Thorney Deeps on 28 Aug. and 1,200 at roost at Southease on 5 Sept., the main autumn movements and concentrations were in the second half of Sept. Then there were 1,000 at Bewl Bridge Res. on 19th and 3,000 roosting at Hastings where thousands moved S the next day. At Shoreham 1,500 per hour flew E all afternoon on 26th, at Worthing 1,700 in 1 hour on 28th. At Rye Hbr. the largest movement of 2,000 was not until 6 Oct., while 500 passed Beachy Head on 13 Oct. In the first three weeks of Nov. totals were 21, 13 and 3 and the last were at Newhaven Tidemills and Widewater on 18 Nov.

316. **HOUSE MARTIN** *(Delichon urbica):*—Singles at Weir Wood Res. on 8 Apr., Waltham Brooks on 11th and at Ditchling and Hassocks on 13th were the first recorded but it was not until the end of the month that many arrived. A major influx took place on 2 May when 600 were over Bewl Bridge Res. and they continued to arrive throughout May with the first at a Brighton colony on 23rd. Although poor weather on 28 May brought 750 to Barcombe Res. and 200 to Darwell Res. virtually all observers reported a very poor spring passage.

At East Grinstead *c.*12 pairs bred where 50-60 are normal; at Mannings Heath about 20% of pairs were found while a Maynards Green colony decreased from 45 pairs in 1983 to 32 in 1984; here 18 pairs tried second broods and the 32 pairs reared 80-90 young. A pair nested on the cliffs at Peacehaven. At Hove young were still in the nest on 3 Oct.

On autumn passage the largest movements were 500 at Maynards Green on 26 Aug., 1,500 at Bewl Bridge Res. on 8 Sept., 700 at Beachy Head on 18th and 29th, 1,000 at Rye on 30th and 3-5,000 regularly at Hastings in late Sept. Passage continued strongly into Oct. with 700 E in 20 minutes at Worthing on 1st, 500 at Rye Hbr. on 6th and at Beachy Head 750 on 13th and 1,000 on 18th. Very few remained after this with the first three weeks of Nov. bringing 19, 3 and 4 (all on 17th) respectively. The last was at Midhurst on 25 Nov.

317. **RICHARD'S PIPIT** *(Anthus novaeseelandiae):*—One was watched at close range at East Head, Chichester Hbr. on 30 Sept. (AO, AP, BM).

318. **TAWNY PIPIT** *(A. campestris):*—An adult at Selsey on 22 Sept. (BDG, PJ).

320. **TREE PIPIT** *(A. trivialis):*—One at Beachy Head on 26 Mar. was the earliest yet recorded in the county. The next was at Cissbury on 8 Apr. and passage was mostly over by late Apr., although 1 flew N at Hastings on 21 May. The first singing birds were on Ashdown Forest on 9th and Woolbeding Common on 12th. During the breeding season 60 singing males were reported from East Sussex, 42 from Ashdown Forest, and 42 from West Sussex. Clearly this does not indicate the size of the breeding population.

Autumn passage started on 8 Aug. at Cissbury and 11th at Beachy Head. Approximately 285 were noted in total with 95 at Cissbury, *c.*90 at Hastings and 55 at Beachy Head. Peak days were 50 at Cissbury on 27 Aug. and 14 there on 16th, 35 at Hastings on 26 Aug. and 12 at Pagham Hbr. on 2 Sept. and Cissbury on 8 Sept. A small but widespread movement was noted on 1 Oct. and the last was seen at Brighton Marina on 11 Oct. and Beachy Head on 27 Oct.

322. **MEADOW PIPIT** *(A. pratensis):*—As usual rather scarce in the winter months. There was a notable roost at Iping Common of 141 in Jan. and 50-60 roosted at Rudgwick and Chichester GP. Passage was marked in the latter half of Mar. with movements on 29th of 223 at Brighton Marina and 226 in 2½ hours at Beachy Head and on 31st of 1,299 at Selsey Bill, 100 per hour at Brighton Marina and 1,000 at Worthing.

Details of breeding season counts from defined areas appear on pages 48-49. The only other breeding season counts were at Combe Haven of 10 singing males and Rye Hbr. of 20+ pairs.

In the autumn notable counts were received of about 1,000 at Combe Haven on 17 Sept., 300 at Castle Hill, Kingston and Cissbury on 23 Sept., 800 at Beachy Head on 27 Sept., with 600 there on 4 Oct. and 650 at Cissbury on 11 Oct. Numbers then declined although there were 50 at Rye on 26 Dec. and 100 in the Amberley area on 29 Dec. Of interest were a very pale individual breeding at Rye and a leucistic one at Beachy Head on 6 Oct.

324. **ROCK PIPIT** *(A. spinoletta):*—The largest numbers in Jan. were 25 at Rye Hbr. and 10 at Cuckmere Haven; there were still 10 in Chichester Hbr. and 11 at Rye Hbr. in Mar. Only 1 bird was reported in the breeding season! In the last 2 months of the year the largest gatherings were 19 in the Cuckmere and 9 at Rye Hbr.

Records of birds of the Continental races *spinoletta* (Water Pipit) or *littoralis* (Scandinavian Rock Pipit) with characteristics closest to *spinoletta* were received from no fewer than 11 sites and approximate monthly totals were:

Jan.	Feb.	Mar.	Apr.	Sept.	Oct.	Nov.	Dec.
21	22	26	28	2	21	(2)*	34

*Main site not counted

These remarkable totals were greatly enhanced by records from 1 site which held 20-25 in the early months and between 20-34 at the year's end. Records of birds with characteristics closest to *littoralis* were received from Newhaven Tidemills on 11 and 18 Mar. (MJH, ARK) and Brighton Marina on 10 Apr. (NAGL). Although this race may be a regular Sussex migrant it is extremely rarely reported, probably due to identification difficulties. The last were 2 in 1980. The best text on distinguishing the sub-species is in *Bird Study* (1970) *17:* 297-319.

325. **YELLOW WAGTAIL** *(Motacilla flava):*—Spring passage was rather late and thin. The first reached Worthing on 5 Apr. and 9 more arrived before 14th when a total of 11 was seen at 6 sites. There were flocks of 26 at Rye on 16th and 23 at Horse Eye Level next day. Combe Haven held a roost of 10-15 birds in May.

Breeding numbers were apparently low but the coverage was poor. Approximate numbers of pairs reported were 5-6 at Combe Haven, 5 at Waltham Brooks, 5 on Pevensey Levels; on 1 June only 2 pairs were found on Amberley SSSI. Only 15 pairs nested at Rye Hbr. LNR against 25-30 in 1983. An unusual site was in dry rough grass at the top of a slope on East Brighton Golf Course.

There were signs of passage from mid-July but the main movement lasted from about 20 Aug. into early Sept. with all else eclipsed by a huge roost of between 500 and 1,000 at Combe Haven. There were other peaks in this period of 200+ at Beachy Head and of 40-50 at Pagham, Thorney, Arlington Res. and Selsey, 35 at Cuckmere Haven, 30 at Berwick and smaller numbers elsewhere. A late flock of at least 40 was at Selsey Bill on 30 Sept., and up to 4 were at a few sites to 14 Oct. One at Whitbread Hollow on 26 Oct., and the last one was mobbing a Kestrel at Pett on 3 Nov.

Two breeding records involved birds showing the characters of the Blue-headed race *M. f. flava:* a bright female paired with a male *flavissima* was feeding young in the Ouse Valley on 30 June and 1-4 July; a male was feeding young at Rye Hbr. LNR on 18 July (this nest was probably flooded out). Single males were also seen at Waltham Brooks on 9-10 Apr., Selsey on 22nd, Arlington Res. on 26th and Birling Gap on 19 Aug. (male); there was a female here on 24 and 25 Aug. A male showing the characters of the Grey-headed race *M. f. thunbergi* was at Sidlesham on 8 May (AJP, PJ *et al.*) and another (or just possibly Ashy-headed *cinereocapilla*) at Mile Oak on 17th (DLS).

327. **GREY WAGTAIL** *(M. cinerea):*—One to 3 were reported from 8 coastal and 26 inland sites in Jan. and Feb. Spring passage at the coast was sparse with only 8 records between 9-26 Mar. About 54 territories were noted in the breeding season, but there was none at Woods Mill where the species has been a regular breeder for many years. On 2 Aug. a total of 8 was present at Ifield.

In the autumn first reported at the coast, at Brighton Marina, on 10 Aug., but most records were for early Sept.-mid-Oct. During Sept. and Oct. *c.*60 were recorded over Hastings, while at Beachy Head there were 23 between 1 Sept. and 11 Nov., with a maximum of 5 on 8 Sept. Elsewhere, 5 were at Charleston reed bed on 8 Sept., 4 at Widewater on 10 Sept., 5 at Cissbury on 16 Sept. and 7 W at Selsey Bill on 29 Sept. At the end of the year records were received from 8 coastal and 21 inland sites in Nov. and Dec.

328. **PIED WAGTAIL** *(M. alba):*—In the early part of the year the largest roost was 88 at Lewes Brooks on 12 Feb. Up to 60 were noted in Combe Haven, up to 50 at Bewl Bridge Res., 40 on the Upper Adur Levels, 34 in a Plumpton ploughed field and 30 on Shoreham Hbr. beach.

In Sept. and Oct. 300 roosted in a Shoreham reed bed and on 17 Oct. 200 on the roof of Seeboard at Worthing roosted in nearby *Cupressus.* In Slinfold village centre there were over 100 roosting in mid-Oct. in a pine and bushes, and 150 at Arundel WFT on 31st. Nov. roosts included 120 at Combe Haven and 34 on fish cages at Bewl Bridge Res. In Dec. 60 were counted at Combe Haven and Arundel WFT, and 92 flew down the Adur Valley at Steyning on the 9th to their reed bed roost near Shoreham flyover.

Five birds showing the characters of the White Wagtail (*M. a. alba*) were seen singly at coastal sites between 23 and 28 Mar. Further singles were noted on 8 Apr. and at 6 sites between 12th and 21st, with 2 at Rye Hbr. on 17th and 4 on 21st. In May there were singles at Hampden Park on 1st and Selsey on the 16th.

329. **WAXWING** *(Bombycilla garrulus):*—**1982**:—An adult was in Tilgate Park on 6 Jan. (MKA).

1984:—Two were at Wakehurst Place on 15 Jan. (PS).

331. **WREN** *(Troglodytes troglodytes):*—Counts of numbers breeding in defined areas are shown on pages 48-49. 'Winter Atlas' counts revealed some quite large numbers, *e.g.* 81 in 8 *Km* between Fairwarp and Nutley on 15 Nov. and 63 in 100 *ha* of Stanmer Park on 26 Dec. Up to 300 wintered in reeds near St. Leonards. During the breeding season 64 singing males were recorded on a 5 *Km* walk at Lavington Common and 41 were noted in 3 *Km* on Coates Common.

333. **DUNNOCK** *(Prunella modularis):*—Counts of numbers breeding in defined areas are shown on pages 48-49.

336. **ROBIN** *(Erithacus rubecula):*—Counts of numbers breeding in defined areas are shown on pages 48-49. In the Ashcombe area of downland numbers were the highest recorded and about 12 birds of possibly Continental origin were trapped from Oct. onwards. 'Winter Atlas' counts revealed between 3 and 8 per *Km* in several areas.

337. **THRUSH NIGHTINGALE** *(Luscinia luscinia):*—A juvenile bearing a Norwegian ring was trapped at Beachy Head on 26 Aug. (RDME, SPH *et al.*); it had been ringed on 14 Aug. in Vestfold, Norway. It was retrapped again on 27 Aug. and 1 Sept. during which period its weight increased by 36%. This is the first to be recorded in Sussex and the first foreign ringed individual to be noted in Britain. The species is slowly expanding westwards in Scandinavia and may become more regular.

338. **NIGHTINGALE** *(L. megarhynchos):*—The first records of the spring were similar to the past 2 years with a singing male at Moulsecoomb on 14 Apr., followed by singles at Beachy Head and Ashcombe Bottom and 2 at Ditchling Common on 15 Apr. Several observers noted a decline in breeding numbers but the incomplete breeding data still showed at least 108 territorial males from 49 different tetrads, 10 of which had no previous breeding records. The highest number recorded was 20 singing in the dawn chorus at Lullington Heath on 19 May.

As usual autumn migrants were noted mainly at Beachy Head where 22, from the county total of 29, were seen between 29 July and 8 Sept.

342. **BLACK REDSTART** *(Phoenicurus ochruros):*—Both spring and autumn were good for this species but surprisingly none was reported from June to Sept. Approximate monthly totals were:

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
8	3	19	37	13	—	—	—	—	168	70	19

Wintering individuals were mainly reported from the coast, 2 at Barcombe Res. on 21 Jan. being an exception. One was present at Brighton Marina until 29 Mar. Singles at Rye Hbr. on 18 Mar. and Seaford on 21st may well have been the first migrants. Peak spring counts were 3 at Beachy Head on 5 and 7 Apr. and 4 there on 3 May. Singles were present in Worthing and Eastbourne on 23 May, Pett on 26th and Hastings on 28th.

The first autumn bird was at Selsey Bill on 7 Oct., followed by singles at Cuckmere Haven on 11th and at East Brighton Racecourse on 15th. An arrival along the coast on 17th included 10 at Beachy Head, 6 at Combe Haven and 4 at Brighton; 7 were seen at Ashcombe Farm, Lewes on 26th. On 30 Oct. 34 were widely scattered along the coast with 9 at East Brighton Racecourse, 7 at Brighton Marina and singles at Pulborough and Nyetimber; on the following day 7 were seen at Selsey Bill and 1 in Crawley.

In Nov. 7 were at Church Norton on 3rd, 9 at Beachy Head on 4th and 4 at Widewater and 3 at Newhaven on 10th. Most other records at the end of the year were of widely scattered singles, with 3 at Balsdean on 16 Nov., 3 at Brighton Marina on 4 Dec. and 3 at Newhaven on 15th.

343. **REDSTART** *(P. phoenicurus):*—First recorded at Beachy Head on 29 Mar. There was a more general arrival on 12-14 Apr. and a total of 39 was recorded to 25 May, mostly at Beachy Head (14) and Pagham Hbr. (8). Males were singing on breeding grounds in Ashdown Forest by 15 and 20 Apr. and on West Sussex commons by 22nd and 24th. No thorough survey of Ashdown Forest was made so only 9 territorial males were noted in East Sussex. There were also 9 reported from the west and only 1 present in an area where there were 4 in 1982 may indicate a reduction in numbers.

Autumn passage started on 9 Aug. on the Brighton Downs. A total of about 200 was seen during this period, half at Beachy Head, where peak movements were noted on 25 Aug. (15), 13 Sept. (13) and 27 Sept. (10). Elsewhere the largest number was 8 on 8 Sept. at Cissbury. Late records were 2 at Rye Hbr. on 21 Oct., 1 at Cissbury on 23rd and the last near Barcombe on 9 Nov.

344. **WHINCHAT** *(Saxicola rubetra):*—Spring passage was good with approximate monthly totals of:

Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.
46	79	—	6	290	170	19	1

The first of the spring arrived at Waltham Brooks on 16 Apr. Migrants were widespread throughout Apr. and there were 30 at Beachy Head on 3 May, 9 at Seaford Head on 17th and 4 at Beachy Head and 15 elsewhere on 18th; 1 at Sidlesham Ferry on 30 May.

Six were recorded between 1 and 21 July but then none before mid-Aug. Return passage was heaviest in late Aug. with 36 at Cissbury and 30 at Beachy Head on 19th, 35 at Thorney on 21st, 50 at Southease on 22nd and 75 at Beachy Head on 25th. In Sept. Beachy Head recorded 30 on 7th, 25 on 13th and 8 on 27th. Elsewhere notable counts were 13 at East Brighton Racecourse and 12 on R. Adur on 2nd, 12 at Selsey Bill on 12th and 12 at Combe Haven on 29th. Few were seen in Oct., 3 at Beachy Head on 6th being the peak. Last of the year were 2 at Pebsham on 30 Oct. and 1 there on 10 Nov.

345. **STONECHAT** *(S. torquata):*—Totals reported from 31, mainly coastal, sites were 38 in Jan., 33 in Feb. and 33 in Mar. Males and females wintered in roughly equal numbers, 20 males: 21 females early in the year and 37 males: 37 females late in the year. Birds wintered on 4 heathlands — Ashdown, Fittleworth, Iping and Woolbeding.

A total of 45 pairs were noted in the breeding season, well below the true county total but widespread fires may have disrupted breeding at several areas. Only 16 were reported on Ashdown Forest and 5 at Beachy Head. More detailed work on the West Sussex commons revealed 12 pairs on Ambersham, Easebourne, Iping and Woolbeding.

Late autumn passage was good with a large movement on 6-8 Oct. when 51 were on Beachy Head and 12 were at Cissbury. The monthly totals were 157 in Oct., 114 in Nov. and 74 in Dec. Inland birds wintered at Crawley, Amberley and Lullington Heath; at least 24 were on the western heathlands and young conifer plantations.

346. **WHEATEAR** *(Oenanthe oenanthe):*—First recorded on Pevensey Levels on 9 Mar., with singles at Beachy Head and Camber on 14th. The first large arrival was not until 10 Apr. with 45 at Selsey Bill, 40 at West Beach, 21 at Widewater and another 45 elsewhere along the coast, and even one in Stanmer Park. On 12th 86 were at Ferring, 19 at Brighton Marina and 30 at Splash Point. The rest of the spring was quiet with 25 at Beachy Head on 3 May and singles at Bewl Bridge, Cuckmere and Shoreham in early June being of note.

In the breeding season 10-12 pairs at Rye Hbr. raised at least 25 young, with a pair at Langney Point raising 1 young and a pair present at Newhaven Tidemills.

In late July 3 were seen, after which the species was more widespread. Passage was heaviest in mid-Aug with a peak of 20 at Thorney, 115 at Cissbury and 55 at Beachy Head on 20th. Few were reported in Sept. and very few in Oct. with a small flurry of records in early Nov. On 2nd singles were at Widewater, Church Norton, Southwick, Rye Hbr., and 4 at Camber on 3rd. Another at Rye on 7 Nov. was followed by the last of the year, at Pagham Hbr. on 11th.

359. **RING OUZEL** *(Turdus torquatus):*—First recorded in spring on 8 Apr. when 2 were seen at Beachy Head and 1 at Malling Down. A further 17 were seen between 11 Apr. and 9 May, with 3 at Beachy Head and 2 at Lullington Heath on 4 May. There were 2 at Combe Haven on 16 May and 2 in Hove from 26-29th.

Autumn passage was noted from 16 Sept. at Beachy Head with 15-20 there up to 11 Oct., the peak was 10 on 6 Oct. Elsewhere 23 were seen during this period including 5 at Cissbury on 8 Oct. After singles in Ashdown Forest and Church Norton on 13th none was reported until 24th with singles at Beachy Head and Church Norton, the latter remaining to 29th, when 3 were present at Cold Coombes, Lewes until 1 Nov.

360. **BLACKBIRD** *(T. merula):*—Counts of numbers breeding in defined areas are shown on pages 48-49. 'Winter Atlas' counts revealed quite large numbers *e.g.* up to 109 in Brighton Cemetery, and 150 around Bognor Regis, Moulsecoomb and Horseye Level, Pevensey. Little autumn immigration was seen on the Downs or the coast.

364. **FIELDFARE** *(T. pilaris):*—Only three flocks exceeded 200 in Jan. with 460 at Rowfant on 22nd, 300 on the Adur Levels and 1,000+ on Horseye Levels both on 29th, but in Feb. 21 flocks exceeding 200 were reported. Maxima were 2,000 roosting at Hastings on 25th, 1,000 at Fletching on 9th, 633 at Salehurst on 14th and 629 on Lewes Brooks on 25th. Substantial numbers remained for the first week of Mar. but thereafter 250 at Plumpton on 13th and 200 at Blackboys on 20th were the only concentrations noted. In April there were 200 at Chiddingly on 6th and 800 in St. Leonards Forest on 8th. The last were at Forest Row on 22 Apr. and at Hastings on 1 May.

A very early bird at Beachy Head on 28 Aug. was followed by 1 at Maynards Green on 25 Sept. Small numbers arrived on 13-15 Oct. at Beachy Head and Ashdown Forest before a slightly wider arrival on 27-28 Oct. In Nov. the only flocks of note were 400 in Ashdown Forest on 15th, 300 on the Adur Levels on 17th and 370 at Amberley on 24th; 300 at Arlington Res. on 15 Dec. was the month's only concentration. A partial albino was on the Lewes Brooks on 22 Dec.

365. **SONG THRUSH** *(T. philomenos):*—Counts of numbers breeding in defined areas are shown on pages 48-49. A considerable night-time passage took place over Coldean on 28-30 Oct. and again on 12-13 Nov.

366. **REDWING** *(T. musicus):*—Flocks of 200+ totalled 4 in Jan., 7 in Feb. and 6 in Mar. and there were 1,000 in several flocks at East Grinstead on 22 Jan. In Mar. numbers were

generally higher with 500 at Hamsey on 11th and at West Chiltington on 15th, 750 at Plumpton on 13th and 1,000 at Turners Hill on 24th. Substantial night movements were heard during 4-11 Mar. in Brighton and Lancing, 11-22 Mar. over Coldean and on 22 Mar. over Worthing. The last were singles at Chichester GP on 12th and Hastings on 16th; an injured bird was at Runcton on 20 May.

An early bird was at Woodingdean on 7 Sept. but the next were not seen until the 26th at Hastings and 29th at Shoreham. There was a very large arrival on 6 Oct. with 400 at Selsey, 200 at Beachy Head and 100 at Brighton. The next day found 500 near Crawley. After heavy nocturnal passage throughout the county between 27 Oct. and 13 Nov. numbers dwindled with only 4 flocks exceeding 100 birds after that date, the largest being 150 at Ebernoe on 1 Dec.

367. **MISTLE THRUSH** *(T. viscivorus):*—Details of breeding season counts from defined areas are shown on pages 48-49. Early in the year the only large counts were 42 at Turners Hill in a 4 hour 'Winter Atlas' walk and 20 at Piltdown on 9 Feb. Post breeding gatherings included 40 at Faygate on 1 July, 41 at Burton Park on 26 July, 35 at Offham on 26 Aug., and 32 in Stanmer Park on 17 Nov.

369. **CETTI'S WARBLER** *(Cettia cetti):*—In the early part of the year only 3 birds were present at two sites up to 16 Apr. A male sang in the east of the county from 2 May to 18 Oct. and one in central south Sussex on 1 June. With no breeding records yet again one wonders if this species will ever colonise the county. From 20 Aug. to the end of the year, a maximum of 7 were at 3 sites. Interesting site fidelity was shown by a female ringed on 13 Nov. 1983 and retrapped at the same site on 14 Oct. and 13 Nov. this year.

373. **GRASSHOPPER WARBLER** *(Locustella naevia):*—A single at Church Norton on 17 Apr. was followed by the arrival of birds at 5 sites from Hastings to Slinfold 20-24 Apr. During the breeding season only 2 males were reported from West Sussex but 20 were heard in the east. The geographical zones occupied were the Downs 8, the Weald 7 and river valleys 6. The reeling period for well documented birds were 24 Apr. to 7 July, 8 May to 10 Aug. and 13 May to 2 June.

Apart from a fairly late bird at Bewl Bridge Res. on 19 Sept. all the other 13 autumn records were coastal with 7 (4 trapped) at Beachy Head from 11 Aug.-8 Sept. and from the Hastings area with the last on 1 Oct.

377. **AQUATIC WARBLER** *(Acrocephalus paludicola):*—Singles were trapped in the east of the county on 19 and 26 Aug.

378. **SEDGE WARBLER** *(A. schoenobaenus):*—First recorded on 12 Apr. at Arundel WFT with a more general arrival between 18th and 21st. Passage continued until very late with birds recorded at non-breeding localities at Midhurst on 12 June and Brighton on 25 June. Breeding counts of defined areas appear on pages 48-49. In addition 29 pairs were recorded between Glyne Gap and Crowhurst. Reductions, some large, in breeding numbers were noted at a number of sites.

Autumn passage was very variable, a number of sites recording very few or none while at Hastings numbers were higher than for the last three years with counts of up to 200 at a time. At Beachy Head 20 were trapped between 29 July and 27 Sept. The last recorded were on 14 Oct. at Camber and 15th near Pebsham.

381. **MARSH WARBLER** *(A. palustris):*—A bird sang by the Information Centre at Sidlesham on 4 June (MS, RML). In the east of the county birds were heard singing at 3 sites; of these 2 were fairly close together and may have involved the same male as the dates were 16 June to 4 July at 1 site and 8-28 July at the other. Elsewhere a male sang on 1-2 July.

382. **REED WARBLER** *(A. scirpaceus):*—First recorded on 15 Apr. at Arundel WFT and on 17th at Shoreham Airport. Spring migration continued into June with singles in a Worthing garden on 1st and at Beachy Head on 10th.

Breeding season counts of defined areas appear on pages 48-49. Between Glyne Gap and Crowhurst 73 singing males were noted by an incomplete survey. Autumn emigration was not particularly evident. At Beachy Head 175 were recorded between 5 Aug. and 11 Oct. with 70 trapped *cf* 48 in 1983. The last recorded were 2 near Bulverhythe on 15 Oct.

387. **ICTERINE WARBLER** *(Hippolais icterina):*—One was seen at Beachy Head on 17 Aug. (RHC).

388. **MELODIOUS WARBLER** *(H. polyglotta):*—There were 3 records in early Sept.; at Church Norton different individuals were seen on 3rd-4th (BJ, CMJ) and 6th-8th (MK, DLS *et al.*). A juvenile was trapped at Beachy Head on 8th (RDME, SPH, AJP *et al.*).

389. **DARTFORD WARBLER** *(Sylvia undata):*—Birds were heard at the 1981 breeding site on 15 Jan. and 18 Apr. but not subsequently. Following a good breeding season in Surrey single birds were seen at 3 potential breeding areas; the dates were 15-19 Nov., all Dec. at the second and 6-29 Dec. at the third. A migrant was present at Pagham Hbr. from 14 Oct. until at least 16 Dec. (EDL, RML *et al.*).

391. **SUBALPINE WARBLER** *(S. cantillans):*—One singing at Fairlight on 22 Apr. (SJRR) has been accepted by *British Birds* and is the second county record.

397. **LESSER WHITETHROAT** *(S. curruca):*—The first arrivals were early and well-synchronised, with 9 birds reported from 4 localities on 21 Apr., followed by about 50 more up to the end of the month including 19 at Beachy Head on 26th.

During the breeding season, many records from the chalk. Scrub of a certain age and structure is the preferred (if transitory) habitat of this species, and much of that which has developed on the Downs since the 1960s is now at an ideal stage and holds high numbers. Unless these gains have been counterbalanced by declines elsewhere, the species must be increasing in Sussex. In downland sites it may outnumber the Whitethroat; hence at Moulsecoomb there were 14 singing males as against 5 of the latter, and at Devil's Dyke 11 as against 7, while in Ashcombe Bottom 21 adults were trapped in the breeding season compared with 11 adult Whitethroats. Shrubb (1979) quotes data showing that the Lesser Whitethroat used to be only one-tenth as numerous as the Whitethroat, and while the latter is known to have suffered an 80% decrease after 1968, so great a change in relative status suggests a genuine increase in numbers of the present species.

As usual, the highest autumn passage numbers were at Beachy Head, where there were 82 on 23 Aug., and 150 on 2 dates in Sept.; 1 there on 11 Oct. was the last of the year.

398. **WHITETHROAT** *(S. communis):*—First reported at Church Norton on 15 Apr., with a further 60 or so to the end of the month mainly on or near the coast. Easily the highest totals on spring passage came from Beachy Head, with 28 on 26 Apr. and 33 on 3 May.

Continued drought in its African winter quarters predictably affected this species, and 9 observers commented that numbers of breeding and autumn passage birds were poor. This contrasted with just 1 report of 'satisfactory' numbers at Bewl Bridge Res. where there were 23 singing males. Few other breeding counts reached double figures but at Pebsham 12 pairs were nesting in scrub which sadly was bulldozed during the breeding season to make way for a rubbish tip.

Nevertheless the Whitethroat remains a common bird. Passage totals at Cissbury peaked at 40 on 11 Aug. and 31 on 16th, earlier than at Beachy Head where the maxima were 78 on 23 Aug. and 150 on 25th. Reported during Sept. in single figures only, except for 33 at Beachy Head on 13th and 10 at Cissbury on 17th. The last were singles at Filsham on 7 Oct. and at Beachy Head on 15th.

399. **GARDEN WARBLER** *(S. borin):*—Birds at Lewes on 12 Apr. and Woodingdean on 14th were early. Spring passage was inconspicuous, with a maximum of only 3 at Beachy Head in early May. Though very much a scrub warbler it seems, unlike the Lesser Whitethroat, not to favour the scrub which has recently colonised many slopes of the

Downs. Hence it was the scarcest of the 4 breeding *Sylvias* at Moulsecoomb and in Ashcombe Bottom. Highest counts were 8-9 singing males in 10 *Km* of disused railway between Hellingly and Sandy Cross, and 15 in 7 *Km* at Ardingly Res.

Surprisingly few were seen on autumn passage except at Beachy Head, where the maxima were 150 on 25 Aug. and 200 on 8 Sept. Otherwise, only 23 were reported from the rest of the county in Aug. and 27 in Sept. The last was at Beachy Head on 21 Oct.

400. **BLACKCAP** *(S. atricapilla):*—About 10 individuals were reported in Jan. and Feb., all from gardens or urban areas, and a further 8 garden birds in Mar. may also have overwintered. The first probable migrants were recorded in early Apr., but the main arrival was in the second half of that month. As usual in the spring, birds arrived directly at suitable breeding sites and numbers seen on actual passage were low, 11 at Beachy Head on 3 May being the highest count reported.

May and June reports suggested that breeding numbers were high, and pairs were even reported from several urban parks in Brighton and Lewes. In a more optimum habitat, there were 14 singing males in 7 *Km* between Ardingly and Balcombe in mid-May, and 20 on 29 June in Stanmer Park. On autumn passage numbers at Beachy Head were exceptional with 1,000 on Sept. 8 and again on 17th, and 700 on 23rd. A count of 140 there as late as 11 Oct. was unusual, and perhaps involved Scandinavian birds. Passage birds were undoubtedly included among the 8 sightings in Nov., but 9 others in Dec. were presumably wintering. Where the sex of wintering birds was given, 16 were males and 8 were females.

404. **YELLOW-BROWED WARBLER** *(Phylloscopus inornatus):*—Singles were present in the Cuckmere valley on 7 Oct. (PJW, TWP, JW) and in Ovingdean Wood on 16 Oct. (NAGL).

408. **WOOD WARBLER** *(P. sibilatrix):*—An extremely early bird was at Shoreham on 10 Apr. but 6 arrived during the more normal period of 20-28 Apr. On 3 May there were probably 4 on Beachy Head. Migrants continued to arrive until at least 17 May and totalled 14 for the spring. During the breeding season 7 males were reported from East Sussex and 13 from the greensand of the far west.

A total of 16 were seen in autumn between 23 July and 31 Aug., mainly on 11 Aug. and 26-28 Aug.

409. **CHIFFCHAFF** *(P. collybita):*—Only about 14 individuals were wintering, with 9 in Jan. and 7 in Feb. Sightings at Gossops Green and Slinfold were well inland. Three at Chichester GP on 4 Mar. were probably additional wintering birds and the first arrivals were probably at Pagham Hbr. on 15 Mar., Lewes on 16th and Arundel on 17th. Arrival continued at Beachy Head until at least 5 May. Breeding season counts from defined areas are shown on pages 48-49. Numbers were very similar to 1983.

In autumn there was a trickle through Beachy Head from about 23 Aug. but it was not until 13-18 Sept. that any significant movement took place on the coastal fringe. At Ashcombe, Lewes, passage was poor but at Beachy Head 250 were ringed (*cf* 176 in 1983), here peak days involved 400 on 17 Sept., 460 on 27th and 110 on 11 Oct. Small numbers were still moving throughout the first 10 days of Nov. Birds showing the characteristics of northern races were seen at Pagham Hbr. 21 Oct.-4 Nov., when 2 were present, at Bewl Bridge Res. on 18 Nov. and Hastings on 2 Dec. Wintering birds in Dec. totalled 27 at 15 coastal or southern sites, with up to 5 in Worthing, 4 in Brighton and the Eastbourne area, and 3 at Chichester GP.

410. **WILLOW WARBLER** *(P. trochilus):*—An early bird was in song at Beachy Head on 28 Mar. and another was at Arundel WFT on 30th; no others were seen until 4 Apr. In Apr. there was a small influx on 7th-9th and a substantial movement on 12th when 45 were at Pagham Hbr. and 31 at Chichester GP; by the 18th 68 were at Bewl Bridge Res. Spring migration continued until 21 May with 40 at Cissbury on 2 May and 100+ at Beachy Head on 3rd. A brown bird showing the characteristics of the northern race was at Bewl Bridge Res. on 18-25 May. Counts of breeding birds in defined areas are shown on pages 48-49.

Systematic Counts of breeding pairs or territorial males

	Adur Levels (AJP) *permanent pasture (55 ha)*	Lullington Heath NNR (ALB) *downland with scrub (156 ha)*	West Dean Woods (RW) 1983 *hazel coppice with oak standards (12.1 ha)*	West Dean Woods (RW) 1984 *hazel coppice with oak standards (12.1 ha)*	Kingley Vale NNR (RW) *yew, mixed wood, grassland (57.9 ha)*	Kingley Vale NNR, extn. (RW) *mixed woodland, scrub (60 ha)*	Cote Street, Worthing (LM) *mixed scrub on chalk (14.2 ha)*	Sindles Farm Copse (AdP, PB) *mixed woodland (6.2 ha)*	Pagham Harbour (JET) *coastal grazing fields, hedgerows, ditches (39.7 ha)*
Turtle Dove	1	3	—	—	1	1	2	—	4
Skylark	29	5	—	—	1	—	—	—	2
Meadow Pipit	23	—	—	—	—	—	—	—	—
Wren	3	28	8	9	7	12	34	5	12
Dunnock	6	21	2	4	8	12	12	1	8
Robin	2	16	17	14	52	29	22	7	7
Blackbird	13	21	5	4	23	21	26	7	8
Song Thrush	1	7	3	3	4	4	4	2	1
Mistle Thrush	—	3	3	1	2	—	4	—	1
Sedge Warbler	12	—	—	—	—	—	—	—	—
Reed Warbler	39	—	—	—	—	—	—	—	11
Lesser Whitethroat	1	4	—	—	2	4	3	—	2
Whitethroat	—	14	3	—	2	3	4	1	—
Garden Warbler	—	7	5	4	1	—	—	1	—
Blackcap	—	2	3	1	3	6	9	2	—
Chiffchaff	—	—	4	1	2	6	4	1	—
Willow Warbler	—	28	16	13	14	17	5	—	5
Goldcrest	—	4	—	1	2	4	1	—	—
Spotted Flycatcher	—	—	1	1	—	—	—	—	—
Long-tailed Tit	—	2	1	2	1	2	2	1	1
Marsh Tit	—	—	7	5	7	4	—	—	—
Blue Tit	3	1	10	3	3	2	11	2	3
Great Tit	1	4	7	5	9	9	12	1	2
Treecreeper	—	—	2	2	—	1	1	—	—
Jay	—	1	1	1	—	1	4	—	—
Magpie	1	7	—	—	3	—	4	—	2
Chaffinch	9	34	19	17	23	22	20	5	10
Linnet	16	15	—	—	—	—	—	—	3
Greenfinch	5	—	—	1	2	—	2	—	2
Bullfinch	—	4	1	1	7	6	8	—	1
Yellowhammer	3	15	—	—	8	4	4	—	2

NOTE: These are based on Common Birds Censuses;

	West Chiltington (FWD) *wealden farm with copses (60 ha)*	Bluebell Railway (MJM) *railway scrub (8 Km)*	Finches Wood, Nuthurst (GET) *coniferous plantation (50 ha)*	Highwoods, Bexhill (AGA) *mixed woodland (37 ha)*	Moulsecoomb, Hollingbury Wood/ Golf Course (MLC *et al.*) *mixed scrub, woodland (280 ha)*	Bewl Bridge Res. (PB *et al.*) *mixed habitat around reservoir (180 ha)*	Hoads Wood, Fairlight (SJRR) *oak, chestnut wood*	Park Wood, Newtimber (MJ) *oak, coppice, conifer underplanting (9.3 ha)*
Turtle Dove	3	6	7	—	—	5	2	—
Skylark	3	—	—	—	4	39	—	—
Meadow Pipit	—	—	—	—	—	37	—	—
Wren	—	37+	17	25	57	80	6	3
Dunnock	10	4-10	12	1	51	38	7	1
Robin	—	42+	16	22	67	91	14	5
Blackbird	—	18-25	16	13	98	126	12	7
Song Thrush	—	5-10	15	2	22	70	7	4
Mistle Thrush	4	—	3	2	16	14	2	2
Sedge Warbler	—	—	—	—	—	1	—	—
Reed Warbler	—	—	—	—	—	—	—	—
Lesser Whitethroat	2	—	—	—	3	4	—	—
Whitethroat	6	2	15	—	6	23	—	—
Garden Warbler	4	1-3	8	—	1	33	5	2
Blackcap	6	3-4	4	6	17	36	12	1
Chiffchaff	7	—	3	2	6	14	7	1
Willow Warbler	8	15-23	19	4	19	114	4	2
Goldcrest	1	3-4	15	5	1	8	2	3
Spotted Flycatcher	2	—	—	—	—	16	1	2
Long-tailed Tit	7	4	—	1	4	8	4	3
Marsh Tit	1	—	—	3	—	4	—	—
Blue Tit	—	—	—	15	46	56	22	5
Great Tit	—	—	—	8	21	26	2	7
Treecreeper	4	2	—	—	—	9	1	1
Jay	9	—	4	2	1	4	1	—
Magpie	8	—	3	—	18	12	2	—
Chaffinch	—	25-35	17	13	54	130	3	4
Linnet	—	—	2	—	18	40	1	—
Greenfinch	—	—	—	—	10	7	2	—
Bullfinch	5	—	2	—	2	16	4	—
Yellowhammer	8	15-23	9	—	8	41	1	—

NOTE: These are based on techniques other than CBC, a dash does not necessarily mean the species was absent.

Other counts of singing males included 43 at Hindleap Warren, 32 at Coates Common, 29 in the Piltdown area, 24 at Ardingly Res. and 23 at Lavington Common.

Large movements took place on 11 Aug. when there were 30 at Selsey, 350 at Cissbury and 420 at Beachy Head, and on 6-7 Aug. with 900 at Beachy Head. At Ashcombe 118 were ringed (35 in 1983), at Beachy Head 748 were ringed, the second highest total in its 24 year history. The last was at Arundel WFT on 30 Sept., except for 2 late birds at Rye Hbr. on 20 Oct. A brown 'northern type' was on Newmarket Hill on 18 Sept.

411. **GOLDCREST** *(Regulus regulus):*—Wintering birds were noted in many habitats but principally on the heathland edges such as 105 at Old Lodge, 52 at Easebourne and 56 near Greatham. The first spring migrant was at Beachy Head on 20 Feb. with passage there from 16 Mar. to 15 Apr. Breeding season counts from defined areas are shown on pages 48-49.

Autumn passage was insignificant, starting at the Midrips on 7 Sept. and mid-Sept. at Beachy Head, where peaks of only 50 were noted on 21 and 24 Oct. Migration appears to have ceased by 17 Nov. Winter counts included 90 at Old Lodge and 42 in Stanmer Wood.

412. **FIRECREST** *(R. ignicapillus):*—The approximate monthly totals were as follows:

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
3	5	17	30	3	1	—	1	5	58	39	10

Wintering birds were very scarce with singles on odd dates at Selsey, Church Norton (with 2 on 3 Feb.), Arundel (from mid-Jan.-20 Feb.), Amberley, Salehurst, Hassocks and Lewes. Spring passage was generally later than usual, the first migrant being at Amberley on 18 Mar. with 2 at the Midrips on 22nd and 1 at Widewater on 23rd. A further 12 were seen, mainly along the coast in late Mar. and 30 in Apr. with 2 at the Midrips and 2 at Rye Hbr. on 1st and 3 at Beachy Head on 8th and 20th. In May singles were seen at Beachy Head on 11th, Balsdean and Blackdown on 19th and a late individual was at Beachy Head on 3 June.

After singles in Sheffield Park on 9 Aug. and at the Midrips on 7 Sept. autumn migrants were not noted until 29 Sept. when 2 were at Beachy Head. Passage was then good throughout Oct. and early Nov. At Beachy Head 5 were seen on 6 Oct., 2 on 20th, 10 on 21st; in Nov. there were 4 on 3rd and 6 on 11th. Elsewhere notable counts were 9 at Rye Hbr. on 29 Oct., 4 at Church Norton on 3 Nov. and 3 there on 10th. Late Nov. and Dec. records were of widespread, but mainly coastal, singles.

413. **SPOTTED FLYCATCHER** *(Muscicapa striata):*—The first was at Runcton on 2 May, 4 were at Rye Hbr. on 4th but otherwise spring passage was poor. One at the Midrips on 5 June was the last migrant. Breeding season counts from defined areas appear in the tables on pages 48-49. Away from defined areas only 9 pairs were reported.

Autumn passage started at Rye Hbr. on 12 Aug. Peak counts were 50 at Cissbury on 2 Sept., 25 at Church Norton on 9th, 25 at Beachy Head on 27th and 9 at Rye Hbr. on 3 Oct. The last of the year was at Church Norton on 21 Oct.

414. **RED-BREASTED FLYCATCHER** *(Ficedula parva):*—Single individuals at Beachy Head on 22 Sept. (DEM) and Church Norton on 7 Oct. (JPS).

416. **PIED FLYCATCHER** *(F. hypoleuca):*—Recorded in above average numbers in both spring and autumn, the approximate monthly totals being:

Apr.	May	June	July	Aug.	Sept.	Oct.
9	5	—	1	133	40	1

After the first at Rogate on 16 Apr., most migrants arrived between 21 Apr. and 3 May when 2 were present on Beachy Head and 1 was found exhausted on a boat in Rye Bay and sadly later died. A late migrant was at West Wittering on 23 May. The origin of a juvenile at Offham on 15 July could be interesting.

Autumn passage was noted from 6 Aug. (at West Ashling) to 1 Oct., most being seen in the last week of Aug. An exceptional concentration of 20 was at Westmeston on 24th while 15 were recorded at Beachy Head on 25th and 4 at Church Norton on 27th. All Sept. records were of widely scattered singles, apart from 25 at Beachy Head on 6th with 12 still there on 8th. Singles were at Rye on 28 Sept., Church Norton on 30th, and the last of the year was at Beachy Head on 1 Oct.

417. **BEARDED TIT** *(Panurus biarmicus):*—**1980, 1981, 1982**:—During each year at least 3 pairs bred at 1 site.

1983:—At the site above only 1 pair bred, raising 5 young. A pair was at another site and was believed to have bred successfully.

1984:—In the first 3 months of the year birds were present at 3 coastal sites with a pair at 1, up to 5 at a second and 9 at a third. Three pairs were present in the breeding season at the regular breeding site; 1 pair definitely bred and 4 juveniles were seen.

In the latter part of the year birds were again present at 3 coastal sites with a maximum of 6 at 1, 4 at a second and 30-40 at the third where the major arrival took place in Oct. but only some 10 remained into Dec.

418. **LONG-TAILED TIT** *(Aegithalos caudatus):*—Though the recent increase may have slowed or stopped, numbers remained at a high level. Thus at Coates Common, 9 pairs were found in 3 *Km*, and there were 6 pairs on Lavington Common. Before and after the breeding season, the occurrence of several separate flocks in the same area was widely noted, the average size being *c.*12 birds. However, in less suitable habitats like parks in Bognor and Brighton, isolated pairs were found throughout the year; out of over a 100 reports not one was of a singleton.

Ringing studies at Weir Wood and Ashcombe both noted high site fidelity and surprising longevity for so small a bird; e.g. a pair trapped at Ashcombe in March had been ringed in the same flock of juveniles in early July 1979, and similar instances were regular.

419. **MARSH TIT** *(Parus palustris):*—Breeding season counts included 6 pairs in 7 *Km* between Ardingly and Balcombe, 4 pairs in 1 *Km* at East Slindon, and 3 pairs in 2 *Km* at Hindleap Warren. This seems to be a very stable species in Sussex both in numbers and distribution.

420. **WILLOW TIT** *(P. montanus):*—In the Weir Wood and Forest Row areas, recorded by DJWS from only 6 out of 50 1 *Km* squares of TQ33 and 11 out of 65 1 *Km* squares visited of TQ43, the figures for Marsh Tit being 22 and 32 1 *Km* squares respectively. A possible range extension was suggested by reports from two different observers at Friars Gate, where detailed work in the 4 previous years had indicated that it was absent.

422. **COAL TIT** *(P. ater):*—Again a marked contrast between the high numbers seen on the commons and in the Ashdown Forest and the much sparser population away from coniferous woodland. Thus 41 singing males were found at the Old Lodge, Ashdown (100 *ha*), but only a single pair bred in an equal area of deciduous woodland and scrub in Ashcombe Bottom. Likewise, single pairs only were noted from Devil's Dyke and Moulsecoomb. Autumn and winter distribution was similar; in Dec. 120 were found at the Old Lodge, 61 in 8 *Km* at Slaugham, and 58 in 3 *Km* at the Isle of Thorns.

423. **BLUE TIT** *(P. caeruleus):*—Nest box studies reported a poor breeding season. At Maynards Green, 3 out of 5 pairs failed, and at Weir Wood not only was the average clutch size of 7.7 very low, but half the 16 nests were deserted. At Possingworth Park the same cold wet spell in late May left some boxes waterlogged, but dry boxes with both eggs and young were included in the 9 desertions from 29 nests.

However, subsequent numbers seemed little affected, judging by Nov. counts which included 260 in Stanmer Great Wood, 250 in 8 *Km* at Slaugham (150 in a single flock), and 107 at Moulsecoomb, while 170 were found in 3 *Km* at the Isle of Thorns in Dec.

424. **GREAT TIT** *(P. major):*—The melanistic bird at Goddards Green from 1983 was last seen on 20 Jan. A party of 32 at Darwell on 12 Feb. unaccompanied by any other species, was considered unusual.

As with Blue Tit, bad weather during the breeding season led to many failures: 5 out of 17 nests at Weir Wood and 6 out of 15 at Possingworth Park, where only 65 young fledged compared with 102 the previous year. Following this, autumn counts and ringing totals

suggested that numbers were down, though Nov. and Dec. reports included 140 in Stanmer Great Wood and 120 in 8 *Km* at Slaugham where there were 100 in 1 flock.

425. **NUTHATCH** *(Sitta europea):*—Small numbers were seen at many sites at both ends of the year; the largest number was 15 in 8 *Km* around Slaugham in Dec. The only breeding season count from a defined area was 4 pairs in 60 *ha* at West Chiltington. Among the other records were 2 pairs at each of Fittleworth, Coates Common and Ashurst. Singles were seen well away from normal areas, at Rye Hbr. on 3 May, the first here since 1972, and at Cissbury on 17 Sept., the second for that area.

427. **TREECREEPER** *(Certhia familiaris):*—At Hastings, 1 was seen on a cylindrical feeder filled with peanuts on 12 Feb. Counts during this month suggested that numbers were higher than usual for that time of year: 8 were seen in 5.4 *Km* at Mountfield, and 5 in 6.8 *Km* at Darwell, while 7 were found around Balcombe and 12 in the Greatham area. However, though widely reported during and after the breeding season, nearly all autumn and winter records were of the usual singles or doubles, with 3 at Darwell in Nov. and 3 at Slaugham in Dec. the only exceptions.

430. **GOLDEN ORIOLE** *(Oriolus oriolus):*—The spring brought 12 or 13 individuals making it the best year yet for the county. All were, surprisingly, in East Sussex. The previous highest total was 10 in 1866 (Walpole-Bond) although an undated and unlikely flock of 14 in 1 bush at an unspecified site was reported by Borrer.

The first was an old male at Beachy Head on 30 Apr., where there was a sub-adult male on 5 May and a female on 16-18 May. There were 3 other coastal records, a yellow male at Jury's Gap on 29-30 May, another at Rye Hbr. on 1-8 May and a probable female at the Cuckmere Haven on 31st. The other records came from 4 different inland areas; these involved an adult, a sub-adult and at least 1 unaged male and a female 15-21 May, an immature male on 9 June and an adult male on 17 June. While song and the harsh calls were heard at several sites, there was no evidence for long stays or breeding.

432. **RED-BACKED SHRIKE** *(Lanius collurio):*—Only 2 records this year, both immatures at Beachy Head on 22 Aug. and 19 Sept. (RHC).

434. **GREAT GREY SHRIKE** *(L. excubitor):*—One at Old Lodge, Ashdown Forest on 14 Oct. (GLC *et al.*) was presumably the same as 1 at Camphill 10-19 Nov. (SL, NEW). Another very poor year.

436. **JAY** *(Garrulus glandarius):*—Perhaps slightly more numerous than usual early in the year after the 1983 influx. A widely scattered N and E return movement totalled 134 birds between 25 Apr. and 10 June in 3 phases, with 12 between 25 and 28 Apr., 106 between 4 and 19 May and 16 between 24 May and 10 June. Peak numbers were 27 on 19 May and 17 on each of 5th, 13th and 18th. The movement was detected primarily on the coast with 42 at Selsey/Pagham Hbr. and 37 at Beachy Head but it was detected inland at Burton Pond, Wivelsfield Green and Bewl Bridge Res. At this last site and Beachy Head small numbers also flew W on other dates during this period. Breeding season counts of defined areas are shown on pages 48-49.

437. **MAGPIE** *(Pica pica):*—The Moulsecoomb roost peaked at 68 in Feb., 64 in Oct., 58 in Nov. and 52 in Dec. Elsewhere few large concentrations were reported with maxima of 42 on Horseye Level on 29 Jan. and 25 at a roost at Lancing College on 27 Dec. Breeding counts from defined areas are shown on pages 48-49.

438. **JACKDAW** *(Corvus monedula):*—The main flocks noted were 800 at South Ambersham on 15 Jan. and pre-roost movements of 1,250 at Iping Common on 17 Nov., 1,000 at Lavington Common on 20 Dec. and 2,500 at the roost at West Chiltington on 30 Dec. In the Cocking church tower there was a colony of 7 pairs while at Earnley a pair bred, unusually, in an old Magpie's nest.

441. **ROOK** *(C. frugilegus):*—After a recovery in 1983 the number of nests within Lewes resumed their decline with 79 (*cf* 96 in 1983). The only large flock reported was of 2,000 at the West Chiltington roost on 30 Dec.

442. **CARRION CROW** *(C. corone):*—The only aggregations noted were of 91 on Horseye Level on 29 Jan. and 40 regularly at Rye Hbr.

442b. **HOODED CROW** *(C. c. cornix):*—Singles were seen at Amberley on 5 Feb. and at Pebsham on 17 May.

444. **STARLING** *(Sturnus vulgaris):*—Roost counts sent in included up to 10,000 at Lower Dicker on 1 Mar., 9,000 in late Aug. at Rye Hbr. and 50,000 near Berwick station in Dec. On 13 Mar. 2,500 were grounded, with thrushes, at Plumpton by bad weather. A migrant was chased by, but eluded an Arctic Skua off Brighton Marina on 19 Apr.

445. **ROSE-COLOURED STARLING** *(S. roseus):*—An adult with Starlings at Beachy Head on 24-26 Aug. (TWP, CAW *et al.*) has been accepted by *British Birds.*

448. **TREE SPARROW** *(Passer montanus):*—The Jan., Feb. and Mar. totals were 408, 540 and 141 in 13, 11 and 5 flocks respectively. The largest flocks were at Goodwood, peaking at 150 on 2 Feb. and Climping, peaking also at 150 on 12 Feb. Concentrations of 40-70 were at Icklesham, Chichester GP, Arlington, Wisborough Green and Small Dole. Nest boxes at Bewl Bridge Res. attracted 5 pairs while 6 pairs were on Rye Hbr. SSSI.

Autumn migration was seen only at Beachy Head, 50 W on 14 Oct., and Bulverhythe, 120 SW on 27 Oct. The Oct., Nov. and Dec. counts were low with 109, 71 and 179 birds reported with maxima of 65 at Jevington on 19 Dec. and 55 at Climping on 8 Dec.

451. **CHAFFINCH** *(Fringilla coelebs):*—During Jan. flocks totalling *c.*2,175 were recorded from 11 localities, flock size ranged from 43 to 800 averaging 198 including 800 at Stanmer Park on 2nd, 600 at Icklesham, 220 at Fittleworth on 12th, and 130 at Mountfield on 6th. In Feb. the total of *c.*565 came from 7 localities included 163 at Balcombe on 11th and 100 at Stanmer Park on 3rd; only 3 flocks totalling 125 were recorded in Mar. with very little passage observed. Counts of breeding birds in defined areas are given on pages 48-49.

After flocks totalling 180 in West Sussex in late Sept., the Oct., Nov. and Dec. recorded totals from 8-9 localities remained comparatively constant at 1,112, 934 and 1,298. Flock size maxima were 550 at Amberley on 7 Oct., 200 at Beachy Head on 7 Oct. and 250 on 4 Nov., 220 in Stanmer Great Wood on 17 Nov., 240 in Moulsecoomb on 24 Nov., 500 at Slaugham on 15 Dec. and 200 at Wakehurst Place on 28 Dec.

452. **BRAMBLING** *(F. montifringilla):*—The flocks at Stanmer and Withdean Park, totalling 220 in Dec. 1983, were still present in Jan., with 300 at Rye and Icklesham and 20 at Goodwood. By 19 Feb. the flocks in the east had departed but in the Brighton area numbers had risen to *c.*535 by 29 Feb. Also in Feb. there were 100 at Goodwood, 35 at Easebourne and small numbers from 3 other localities, the month's total was *c.*680. By mid-Mar. there were only 220 recorded, all but 7 being in the Brighton area declining to 50 on 10-11 Apr.; 4 E at Seaford Head on 23 Apr. and 1 at Withdean on 24th were the final records. Very few were seen late in the year. Between 14 Oct. and 4 Nov. 33 passed over Hastings and Beachy Head. The Nov. and Dec. totals were only 4 and 10 respectively.

453. **SERIN** *(Serinus serinus):*—**1983**:—A male sang at Pebsham from 24 Apr.-4 May (SCR) bringing the year's total to 7.

1984:—Six birds recorded. They were 2 males at Lewes 5-12 Apr. (RM, JC, RDME *et al.*), an adult male at Chichester GP on 8 Apr. (EDL), a a male on 11 May and male on 6 June at Beachy Head (RHC) and an immature at Haywards Heath 29 Aug.-10 Sept. (NEW).

455. **GREENFINCH** *(Carduelis chloris):*—In Jan. only 3 flocks totalling 124 were recorded; Feb. produced 5 flocks totalling *c.*260 of which *c.*210 were in the Brighton area.

Few were noticed later in the spring. Breeding season counts from defined areas are shown on pages 48-49.

At Rye Hbr. a flock of 100 on 8 Sept. increased to 200 during Oct., peaked at over 500 on 5 Nov. but declined to 200 by 17 Nov. with only 25 during Dec. Elsewhere in the county, 278 in Oct. included 120 at Cissbury on 6th, and all 214 in Nov. were recorded in the Brighton area. Apart from 17 at Nuthurst all 322 in Dec. were also in the Brighton area, with *c.*160 at Stanmer Park.

456. **GOLDFINCH** *(C. carduelis):*—During Jan. 314 were recorded from 15 localities with maxima of 63 at Fittleworth and 60 at Etchingham and Hellingly. In Feb. the total of 338 from 16 localities included 80 at South Ambersham on 7th and 56 at Robertsbridge on 24th. Very few were then recorded until the mainly N passage commenced on 4 Apr. From this date until the end of May passage was recorded from Selsey to Rye with the main emphasis on 23-28 Apr. During May 37 were at Burwash on 6th and 45 were at Rye Hbr. LNR on 31st.

The species is difficult to census during the breeding season and few records were received. From 25 Aug. until late Sept. *c.*1,200 were recorded, flock size ranging from 10 to 225, averaging 62. During Oct. and early Nov. *c.*1,900 were recorded mainly from the coast and Downs, the main passage was 320 E at Widewater in 25 minutes on 1 Oct. and 224 W at Beachy Head on 1 Nov. Small numbers remained after this with 176 from 11 localities in Dec. with a maximum of 50 at Hurst Green on 20th.

457. **SISKIN** *(C. spinus):*—In Jan. *c.*300 were recorded from 22 localities (*cf* 250 from 21 in Dec. 1983) with maxima of 50 on 7th at Buxted and 65 on 29th at Crowborough; 76 moved N over Pebsham on 20th. The Feb. total increased to *c.*720 with maxima of 250 on 18-19th in the Arundel area and 100 at Stansted Forest on 10th. During Mar. there were 200 at Mountfield on 3rd, 500 at Battle Great Wood on 4th and 100 at Verdley Wood, Fernhurst on 5th; only 60 were recorded during the last week of the month. Between 5 Mar. and 13 Apr. 150 were ringed in an East Grinstead garden. Two were present in West Sussex on 24 May but, surprisingly, they have not yet colonised the county.

During the autumn 320 passed over Hastings between 19 Sept. and 27 Oct. with a maxima of 60 S on 30 Sept. and 49 SW on 2 Oct.; at Beachy Head 46 were recorded between 23 Sept. and 11 Nov. Elsewhere in the county the Sept., Oct. and Nov. totals were merely 19, 20 and 76 respectively with 17 at Fernhurst on 29 Sept. and 60 at Gossops Green on 18 Nov. the only sizeable flocks. The Dec. total was only 3.

458. **LINNET** *(C. cannabina):*—During Jan., Feb. and Mar. 166, 52 and 221 respectively were recorded from no more than 6 localities, with maxima of 90 at Icklesham in Jan. and 100 at Singleton on 3 Mar.

At Selsey Bill only 52 N were recorded between 7 Apr. and 25 Apr.; Brighton Marina totals for Mar., Apr. and May were 25, 335 and 3 respectively with a maximum of 79 N on 7 Apr.; from Beachy Head "flocks up to 30 all day" were recorded on 8 Apr.; and Rye Hbr. reported continual passage NE during Apr. and small flocks during May, 200 on 1 May being the last large flock.

Counts of breeding birds in defined areas are shown on pages 48-49: other reports included 30-40 pairs at Rye Hbr. LNR and 14 pairs around Waterhall Tip. The first sizeable post breeding flocks were 460 at Selsey on 16 Aug. and 200 at Rye Hbr. LNR on 27 Aug. The total of 920 in Sept. included 400 at East Brighton GC and 350 at Selsey. Apart from 300 at Bewl Bridge Res. on 8 Oct. all Oct.-early Nov. records were from the coast and Downs. At Beachy Head *c.*2,200 were recorded from 4 Oct. to 14 Oct. with a maximum of 1,000 W on 14th. Elsewhere during Oct. and the first week of Nov. flocks totalled 960 and 75 respectively. At the end of the year very few were noted.

459. **TWITE** *(C. flavirostris):*—The wintering flock of 20 birds remained at Sidlesham Ferry throughout Jan., with 24 at Pagham Lagoon on 18 Feb. probably being the same. On 19 Feb. 13 were back at Sidlesham Ferry but none was reported subsequently until 3 there in mid-Mar. On R. Adur 3 were present in early Jan. with 6 on 28th. Elsewhere 10 were reported from Rye Hbr. in Jan. and 2 in Feb. with 11 at Camber on 14 Mar.

One at Pagham Hbr. on 15 Sept. was a very early migrant. None was then seen until 11 Oct. when 5 appeared at Cuckmere Haven, increasing to 30 on 13th, when 2 were at West Wittering and 2 at Rye Hbr., and to 45 on 18th. On 23rd 2 were at Selsey with 5 at Sidlesham Ferry on 21st, building up to 35 on 11 Nov. and reaching a peak of 43 on 17th; 35 were still present there in mid-Dec. On R. Adur there were 4 on 1 Nov. with 2 reported from Rye Hbr. in Nov. and 8 there in Dec.

460. **REDPOLL** *(C. flammea):*—From Jan. to early Apr. 16 flocks of 40 or more were reported, spread throughout the county and involving over 1,000 birds. The largest were several flocks totalling at least 160 in Ashdown Forest, 100 at Buchan Park, Crawley, 100 at Marley Common, 85 at Chithurst, 70 at Three Bridges and 65 at Burwash. It remains scarce on the coastal plain.

The assessment of breeding pairs is notoriously difficult with communal song flights taking place over large areas but about 50 singing males were noted, mostly well inland on the birch-fringed heaths.

Autumn passage was noted from 11 Oct. to 18 Nov.; 2-300 passed over Hastings and about 170 over Beachy Head. Peak days were 40 at Beachy Head on 11 Oct. and Hastings on 27 Oct. It was scarce late in the year with just 5 flocks of 20 or more, principally 60 in Tilgate Park, 50 on the Isle of Thorns and 45 at Crowborough.

463. **CROSSBILL** *(Loxia curvirostra):*—Following the substantial influx in Oct. 1983 numbers apparently increased during the first 4 months. The approximate monthly totals were:

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
Totals	252	297	236	175	3	29	11	3
Number of sites	15	14	14	9	1	3	2	1

The largest concentration was in the woods between Ardingly and Paddockhurst, with up to 57 seen together and about 100 present. Apparently separate groups were in nearby Brantridge Forest (25), Gravetye Woods (22), Worthlodge Forest (18) and Leonardslee (22). At Ashdown Forest surprisingly few, up to 6, were present to Mar. but there were 30 in Apr. with at least 10 remaining to June. In Wepham Wood, Arundel, numbers peaked at 54 in Feb.; at Parham Park the peak of 15 was in Mar. while at Ambersham Common it was 25 in Feb. Small flocks, totalling *c.*40, were in the Midhurst area throughout the winter and spring. In the far west there were 20 in West Dean Woods and 16 in Stansted Forest.

Despite the presence of a few singing males no definite nesting attempts were observed but 3 juveniles were seen on Ashdown Forest on 2 June and 3 probable juveniles near Midhurst on 11 June. The latest dates from these 2 areas were 11 Aug. and 12 July respectively. The only record from the Friston area was at Charleston Bottom on 7 July. No birds were seen after these dates.

466. **TRUMPETER FINCH** *(Bucanetes githagineus):*—An individual of this pale Mediterranean desert bird was found feeding among Linnets at Church Norton on 18 May; it remained until 23 May and was eventually taken by the local Sparrowhawk! (NC, CMJ, BJ *et al.*). This very unexpected sighting was the first for Sussex and only the third for Britain; it has been accepted by *British Birds*.

469. **BULLFINCH** *(Pyrrhula pyrrhula):*—Few records were submitted of this widespread bird. The largest flocks were of 14 at Gossops Green on 3 Mar. and 12 at Nuthurst on 28 Dec. Counts of breeding birds in defined areas are shown on pages 48-49.

470. **HAWFINCH** *(Coccothraustes coccothraustes):*—A good year, recorded as follows: singles in Arundel Park and at Milton Hide in Jan., at Offham Hangar and Dover Woods in Mar. with 4 at Wakehurst Place and at least 4 around Haywards Heath in Mar. and Apr. In May and June singles were reported from Lamberhurst, Lindfield, Hurst Green and Wakehurst with 2 at Ifield in mid-May. Most unusual were 5 flying over Fairlight on 10 June with 9 doing the same on 11th. Breeding was proved at 2 localities (Fore Wood and Cowdray GC). None was then seen until 3 near Walberton on 4 Oct. In Nov. and Dec. up to 5 were present at Wakehurst Place.

494. **SNOW BUNTING** *(Plectrophenax nivalis)*:—Only 11 were reported. Singles were at Pett Level on 28 Oct. and 17 Nov., Hastings on 2 Nov., Marley Common 7-10 Nov., Newhaven Tidemills on 10 Nov., Arlington Res. on 15 Nov. and Goring Gap on 17 and 21 Nov. Two were at Rye Hbr. on 7 Nov. and 9 Dec.

496. **YELLOWHAMMER** *(Emberiza citrinella)*:—The Jan. total of 149 came from 6 localities; flock size ranged from 10 to 57 and averaged 25; low numbers continued through Feb. and Mar. Breeding season counts from defined areas are shown on pages 48-49. Other counts of territorial males included 22 at Ambersham Common, 16 in 4 *Km* at Hindleap Warren, 11 at Etchingham and in 3 *Km* at Heyshott Down, and 9 at East Blatchington, Piltdown GC and Waterhall Tip.

In autumn *c.*200 were noted along the Downs, with 80-140 at Cissbury and 50 at Ashcombe Farm, Lewes, where 58 were ringed, double the recent average. The Nov. and Dec. recorded totals were 215 and 164 respectively, maxima were 50 at Lewes and Balsdean, plus 132 in 5 *Km* at Castle Hill on 10 Nov.

499. **ORTOLAN BUNTING** *(E. hortulana)*:—Two were seen in early Sept.; they were on 6th-7th at Beachy Head (RHC) and an immature trapped at Patcham on 13th (RH, RL).

506. **REED BUNTING** *(E. schoeniclus)*:—Early in the year on Ashdown Forest there were up to 60 at Isle of Thorns, 20 at Duddleswell and 20 at Old Lodge. Numbers reported elsewhere were small including 14 on Horseye Level in Jan., 10+ at Woolbeding in Feb. and 13 at Bewl Bridge Res. in Mar.

Breeding season counts of singing males or pairs included an increase to 58 at Bewl Bridge Res., 46 in Combe Haven and 40 at Rye Hbr. The 19 in 55 *ha.* of Adur Levels was the same as in 1983. In Ashdown Forest there were 7 pairs at Isle of Thorns and 6 around Hindleap Warren.

On Ashdown Forest in Nov. there were over 50 near Camp Hill and 94 between Fairwarp and Nutley on 15th, while in Dec. 220 were at Gills Lap on 9th.

510. **CORN BUNTING** *(Miliaria calandra)*:—From the coast and Downs the larger gatherings early in the year were of 100 going to roost over Rottingdean on 25 Jan., 67 on a Winter Atlas count near Shoreham on 20 Feb., and 60 at Balsdean on 9 Feb. Breeding season coverage was less comprehensive than last year but showed the same concentrations on the Downs with a few at coastal sites.

Up to 200 were around Shoreham Airport in Aug.; 45 in mid-Sept. and 30 in late Oct. were on East Brighton GC. At Ashcombe Farm, Lewes, there were 50 on 6 Nov. and 70 on 9 Dec.; on the last day of the year 50 went to roost near Arlington.

RINGING IN SUSSEX IN 1984

by R. Leverton

Key to symbols and terms

Age

1 Pullus (nestling or chick not yet flying).
2 Full-grown, but year of hatching quite unknown.
3 Definitely hatched in current calendar year (J = still in juvenile plumage).
4 Hatched before current calendar year, but exact year unknown.
5 Definitely hatched last calendar year.
6 Hatched before last calendar year, but exact year unknown.

Manner of recovery

x Found dead or dying.
\+ Shot or killed by man.
() Trapped alive and not released.
v Controlled: caught and released by a ringer elsewhere.
vv Ring read in the field.

Sex

♂ male ♀ female

Details were received of 20,350 birds ringed in Sussex in 1984, slightly fewer than the previous year. However, the total of 106 species handled was very high, with recent colonists Kittiwake and Fulmar ringed for the first time, plus a good scatter of scarce migrants including Wryneck, Aquatic Warbler and Melodious Warbler. Some of these would doubtless have gone unnoticed had they not been caught, like the immature Ortolan netted amid a flock of downland Yellowhammers, and the Thrush Nightingale which stayed at least a week yet was never seen in the field. This was a first record for the South Coast, and the first with a foreign ring in Britain:

Thrush Nightingale	3	14.08.84	Molen, Vestfold, Norway
	v	26.08.84	Beachy Head (BHRS) 1099km SW
	v	01.09.84	Beachy Head

Presumably a drift migrant, it weighed only 20.8gm when first caught, but a week later had increased this to 27.9gm, suggesting it was well capable of continuing its migration successfully in spite of its displacement.

Autumn passage of most small migrants was good, which only served to highlight the further decline of those species which winter in the Sahel area, again hit by drought. Judged on ringing totals, the Whitethroat was the least numerous of the four regular *Sylvia* warblers in Sussex, and Sand Martin, Yellow Wagtail and Redstart were well down. Surprisingly, many of the common residents apparently declined somewhat from their 1983 levels, though the intervening winter was mild. Wren and Robin totals increased, but Dunnock, Blackbird, Song Thrush, all the tits especially Great Tit, plus Chaffinch and Greenfinch, showed falls.

Well over 300 recoveries and controls were reported, many being mundane; but others usefully complemented those of earlier years. At least 250 Canada Geese moulted at Petworth Park in 1984, but for some as yet unfathomed reason one which had moulted there the previous year now decided to moult in Scotland:

Canada Goose	4	30.06.83	Petworth Park (ABW)
	v	07.07.84	Beauly Firth, Highland 760km NNW

Though eight similar instances are known, all were in 1978. Likewise, the early westward dispersal of juvenile Kestrels was noted in 1981 (*SxBR.* 34:53), but one went both earlier and further in 1984:

Kestrel	1	06.06.84	The Racecourse, Brighton (AJP)
	x	25.07.84	Chewton Mendip, Somerset 179km WNW

The Barn Owl is one of only two birds of prey currently declining in Britain. In Sussex at least, there is little mystery as to the cause. Loss of habitat due to the increase in cereals, and the virtual disappearance from many areas of permanent unimproved grassland, has forced this owl to hunt increasingly on roadsides and along railways where it is greatly at risk. Sandison (*SxBR.* 33:76) recorded that 33 out of 41 Barn Owls found dead in Sussex were road or rail casualties. Of a brood of three ringed near Petworth in 1983, one was found dead on the railway at Farnborough, Hants. the following February. Another was injured on the road in December and was cared for and released, only to be found dead on the railway

near Gatwick, again in February. Such mortality offers very little hope of stemming the decline.

The adverse effects of modern farming on the scarcer forms of wildlife are well-known, but up to now the commoner farmland fauna and flora have survived. However, increasingly sophisticated herbicides are enabling farmers to control weeds in pastures, cereals and rootcrops to an unprecedented extent, and there are ever fewer neglected corners and headlands where weeds can flourish. Finches are the birds most likely to be affected by the resultant loss of seeds. Ringing totals in Sussex suggest that Goldfinch and Linnet may have been declining for the past decade or more. Other species are less affected: Chaffinches thrive on spilt grain in autumn and winter, and feed their young chiefly on caterpillars. Ringing totals show no long-term decline. Bramblings are scarce winter visitors to Sussex anyway, and are more often seen on passage to or from the Continent. This is the oldest BTO-ringed Brambling yet found:

Brambling	5♀	28.03.75	Ashcombe, Lewes (RL)
	()	13.11.83	Marina di Massa, Genova, Italy 1078km SE

The Greenfinch has responded to the loss of natural food by changing its diet and its habitat in winter, so that in many areas it is primarily a garden bird feeding on peanuts and commercial bird-seed. Evidence that Greenfinches make orientated south-westerly movements into Sussex in the winter and return in the opposite direction next spring has been given in previous ringing reports. Further instances now justify a map.

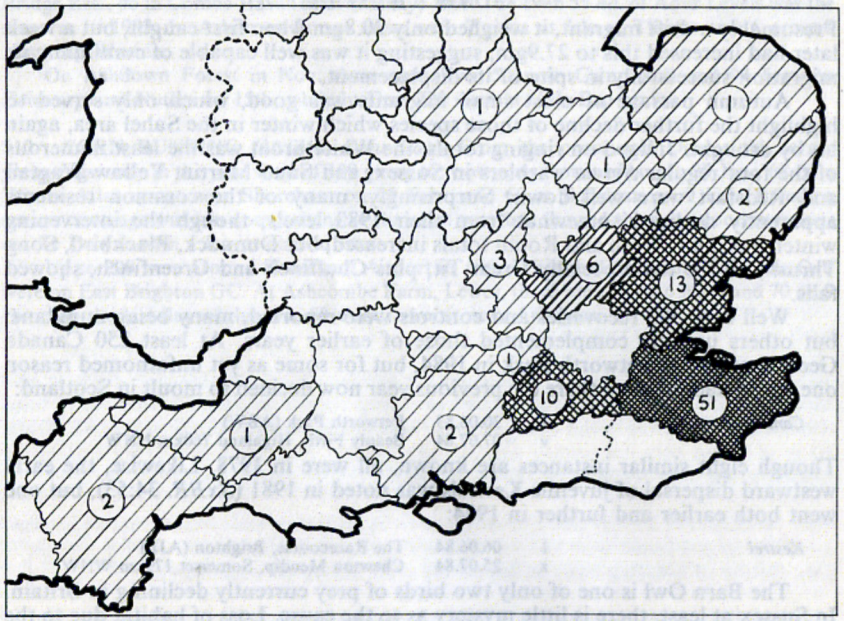


Figure 1. Greenfinch movements to or from Sussex, 1979-1984.

Some bias due to the preponderance of the work being done at East Grinstead by RFS must be allowed for, but the avoidance of Greater London seems genuine, as does the scarcity of movements to or from neighbouring Hampshire when compared with Surrey and Kent.

The use Siskins make of garden feeding stations is rather more complicated. The usual explanation is that they turn to gardens once their preferred natural foods are exhausted, but the habit seems a local one. Of the 599 Siskins ringed in Sussex in 1984, 94% were in two gardens in East Grinstead, where the monthly trapping figures were 6 in Jan., 38 in Feb., 434 in March and 84 in April. Firm evidence was found from retraps that birds were using peanuts to gain weight rapidly before departure, and previous studies (Davis 1976) have shown that Siskins feeding on natural foods weigh less than those taking artificial ones. It seems strange that so obviously useful a food is not sought out earlier in the winter, especially by the older birds with previous experience of it. Siskins are one of the few species to benefit from the Forestry Commission's policy of conifer-planting, and at least one of the following birds was nesting in Sitka Spruce:

Siskin	5♀	23.02.84	East Grinstead (RFS)
	v	19.04.84	Glentrool Forest, Dumfries & Galloway 540km NW
Siskin	6♀	14.03.84	East Grinstead (RFS)
	v	18.04.84	Golspie, Highland 803km N

Other garden Siskins are of Continental origin:

Siskin	3♀	11.09.83	Neringa, Lithuania
	v	17.11.83	Marley Common (PGD) 1527km WSW

Several east and south-easterly movements to East Grinstead in spring were suspected to involve Continental birds on their way home. The two longest are listed:

Siskin	5♀	09.03.84	Shrewsbury, Salop
	v	30.03.84	East Grinstead (JC) 255km SE
Siskin	5♀	17.03.84	Exeter, Devon
	v	07.04.84	East Grinstead (RFS) 248km E

With new breeding habitat being created in its summer range, and new food sources at the time when food is scarcest, the Siskin seems set fair in Britain. Many of the birds which benefit most from man are not among the more attractive species in our avifauna — how pleasing that the Siskin is.

Less well-loved are the Gulls, scavengers rather than guests. Another 80 foreign movements were logged, mainly of Black-headed Gulls, but it was one of the few Lesser Black-backs caught which provided the most interesting recovery:

Lesser Black-backed Gull	6	07.03.84	Sompting Tip (GSG)
	x	18.07.84	Sorvay Vagur, Faeroes 1317km NNW

Of the race *graellsii,* the March ringing date suggested it was on passage.

Ringing is a useful tool for studying movements and mortality, especially of the larger birds, in well-populated and literate countries. Yet it is much less effective at filling in one major gap in our knowledge. Up to a third of the birds ringed in Sussex are small passerines which potentially will winter in Africa where their success or otherwise has a direct effect on the numbers returning the following spring. Unfortunately ringing as it is at present carried out is a painfully slow and expensive way of buying information about the fates of the small migrants which leave us in autumn. No wintering-ground recoveries were reported from Africa in 1984, though there were three involving return passage. While there is sometimes doubt that the stated date of finding is correct, much evidence does suggest that migrants may still be in Morocco quite late into the spring, perhaps because they have been unable to fatten up enough to leave earlier:

Reed Warbler	3	20.07.80	Strivens Reedbed, Steyning (SRG)
	+	01.05.81	Ksar Tasarin, Amouguer, Morocco
Blackcap	3♂	30.09.79	Beachy Head (BHRS)
	()	20.05.84	Al Hoceina, Morocco 1749km S

Swallows on passage in Britain regularly feed over sewage farms, and no doubt such places are equally good for flying insects in Africa:

Swallow	3	10.09.83	Southease, Lewes (MIB)
	v	12.03.84	Suakopmund SF, South West Africa 8289km S

This bird was controlled by a West German ringer, while the French are also very

active in their former colonies. In this respect, British ringers have lagged far behind, tending to study breeding populations of small migrants in ever greater detail while neglecting the vital question of their wintering ecology. But more is known about some of the larger species. Terns are among the greatest travellers, and however much they are protected here they face dangers once they leave, especially in Africa where many are trapped:

Common Tern	1	12.07.84	Stakes Island, Chichester Harbour (AJP)
	()	10.10.84	Safi, Morocco 2167km SSW

Such trapping is now thought to have a significant effect on tern populations.

A feature of October 1983 was the Jay irruption, and it is pleasing to report that a Sussex-ringed bird helped both to illustrate the westerly movement and show the probable involvement of English as well as Continental birds:

Jay	3	22.08.83	East Grinstead (JC)
	+	05.05.84	Dunley, Hants. 94km W

A series of similar Jay movements is given in Mead & Hudson (1984).

Merritt *et al.* (*SxBR.* 22:68-80) studied Grey Wagtails in Sussex in the late 1960s and emphasised their dependence on sewage works, especially for wintering. Unfortunately the open-bed type of works favoured by the birds is steadily being replaced by closed filtration, which may adversely affect Grey Wagtails. Both recoveries listed involve small sewage works not yet converted to the new system, and show respectively a Sussex-bred bird leaving the County, and a Hampshire nestling wintering in Sussex. These are longer movements than suggested by Merritt's work, and may reflect the difficulty Grey Wagtails now have in finding suitable wintering habitat:

Grey Wagtail	3J	09.07.83	Friars Gate SF, Crowborough (M&LL)
	v=♀	05.05.84	Hatfield, Herts. 81km NNW
Grey Wagtail	1	14.07.81	nr. Lyndhurst, Hants.
	vv	27.12.83	Swanborough SF, Lewes 112km E

Several instances of Continental Robins apparently wintering in Sussex have recently been noted, so that even a Polish-ringed bird killed by a car did not set a precedent — there was a similar instance in 1981:

Robin	4	28.04.83	Hel, Gdansk, Poland
	x	02.12.83	Upper Beeding (ID) 1330km WSW

Immigrant Starlings probably outnumber the locals in winter, and the various populations appear to merge indiscriminately. Garden ringing has shown that a Starling on the lawn in winter may breed in next-door's roof — or very much further away:

Starling	2♀	26.11.81	West Worthing (JAN)
	+	24.05.83	Varisto, Uusimaa, Finland 1896km NE

Starlings have quick reactions and a steep take-off angle, so that relatively few are reported as killed on the roads (2.3%) or by collision with windows (1.1%). Reaping the benefits yet avoiding the hazards of urbanisation, they may live to a ripe old age:

Starling	3J	29.06.72	Filsham (FRG)
	x	29.06.84	St. Helen's Hospital, Hastings

Presumably it was found in the geriatric ward.

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SOME ASPECTS OF THE SPRING MIGRATION OBSERVED FROM THE SUSSEX COAST DURING 1984

by J. A. Newnham

After a winter dominated by a mild Atlantic airflow with winds mainly from the south and west the spring of 1984 brought an abrupt change. On 12th March the winds turned to the east and remained from a northerly or easterly point on most days until mid-May. In stark contrast to the spring of 1983 the weather was very settled with barometric pressure remaining high; most days were dry, often sunny and warm yet nocturnal temperatures fell below the season's average. Similarly the conditions inducing winds to oscillate between south-west and south-east, which, in 1983 brought many seabirds in view of the coast, were absent from 25th March until the first frontal system approached from the west in early June. Needless to say these different conditions brought different species in sight of the Sussex coast.

Prolonged periods of seawatching were carried out between March and early June at the usual stations and the hours logged are shown below.

	Selsey Bill	*Worthing*	*Brighton Marina*	*Beachy Head*
Total hours watched (March-June)	282	379	509	162

The variety and number of each species seen are documented in the list of classified records but the dominant feature of the entire spring seawatch was the large number of waders observed particularly during late April and this aspect is described in more detail.

TABLE I. TOTALS OF BAR-TAILED GODWITS MOVING E AT 5 COASTAL STATIONS ON 5 DATES IN 1984 (HOURS WATCHED)

Date	*Keyhaven (Hants)*	*Selsey Bill*	*Worthing*	*Brighton*	*Beachy Head*
April 25	194 (6½)	275 (13½)	261 (11½)	539 (13½)	113 (3½)
April 27	1373 (8½)	441 (8)	1637 (10½)	2019 (11½)	131 (3)
April 28	2186 (11)	184 (10)	901 (8½)	1846 (10)	1823 (12)
April 29	5511 (15)	962 (14)	3029 (10)	1162 (9)	2793 (8½)
April 30	511 (7)	98 (8½)	137 (5)	162 (12½)	131 (3½)

Whilst at least 9,707 Bar-tailed Godwits were noted passing the Sussex coast, over 10,000 were recorded from the Solent and Table I shows details of this passage. On both 27th and 28th April heavy passage was noticeable from early afternoon until dusk whereas on 29th April parties of godwits were passing all day with the peak hours occurring between 08.00 to 09.00 at Keyhaven and Selsey Bill, between 09.00 and 10.00 at Worthing and an hour later at Beachy Head. Interestingly passage halted abruptly on 30th April as the winds backed to blow from a south-easterly point.

Table II shows the peak movements of Whimbrel and demonstrates an equally variable picture to the godwit movements although the peak days in 1984 were spread over a longer period. The variations in the daily totals of both species raise several points. Clearly some of the differences are due to inconsistent observations or to variable visibility but it is obvious that during heavy movements fewer birds are seen from Selsey Bill than are seen from other sites. Whimbrel, particularly during the late evenings, are frequently recorded flying away from the coast in a north or north-easterly direction, occurring inland in Sussex fairly frequently, and this tendency may account for some of the observed differences in offshore passage. Although some observations suggest that some Bar-tailed Godwits may leak inland, or pause to rest, the county records reveal no evidence of the marked overland passage which would be necessary to account for the observed variations seen at coastal sites.

TABLE II. TOTALS OF WHIMBREL MOVING E AT 5 COASTAL STATIONS ON 6 DATES IN 1984 (HOURS WATCHED)

Date	*Keyhaven (Hants)*	*Selsey Bill*	*Worthing*	*Brighton*	*Beachy Head*
April 21	33 (1½)	21 (6)	20 (4½)	113 (10)	58 (4)
April 23	105 (2½)	34 (6½)	118 (5)	169 (8½)	74 (5½)
April 25	43 (6½)	16 (13½)	31 (11½)	106 (13½)	4 (3½)
May 5	10 (5)	44 (12½)	51 (11½)	74 (11)	45 (7½)
May 10	—	38 (6½)	104 (10)	71 (9½)	—
May 14	—	—	161 (6½)	61 (10)	—

Cooper (1975) has already demonstrated late April to be the peak for Bar-tailed Godwit passage and in 1984 each site noted between 81% and 90% of their spring total in this period. Undoubtedly the passage originates from the 300-400,000 wintering in Mauretania, moving to the Waddensea where large accumulations occur each May (Prater 1981). Fig. 1 demonstrates the timing of the Whimbrel passage and shows a rapid increase in movement during mid-April to peak, like the Bar-tailed Godwit, in late April. The peak coincides with counts of up to 30,000 seen in the Netherlands. However both Fig. 1 and Table II show substantial movements continuing well into May.

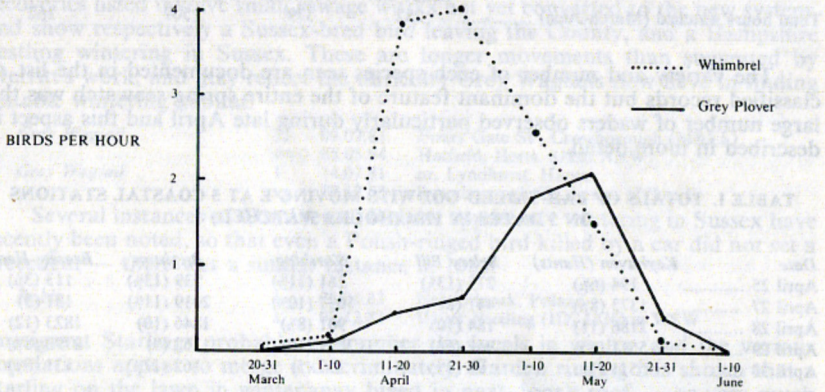

Fig. 1 The rate of eastward passage of Whimbrel and Grey Plover at Worthing in 10 day periods (1980-1984).

Although Whimbrel have seemingly increased in recent years the numbers of both species passing Sussex vary considerably each year and most are seen in settled weather with east to north-east winds. The small proportion of the total populations observed indicate that the diurnal coastal movement is only part of the migration story, others undoubtedly migrating at night, at high altitude and over continental Europe.

The spectacular nature of the Bar-tailed Godwit movement is due partly to the large flocks which regularly exceed 100 birds, however, the overall average for the springs 1979-1984 at Worthing was 21 birds per flock which is comparable to the mean of 22.4 noted at Beachy Head during the mid 1970's (M. J. Rogers *in litt.*). Detailed studies at Worthing have shown a marked increase in flock size on days of heavy passage although the flocks recorded on the peak day in 1984 remained at an average of 23.9 birds per flock. Whimbrel, however, move in much smaller flocks and although occasional parties of 80 Whimbrel have been noted the mean flock size for the past six years have ranged between 2.9 and 5.1 birds per flock. Whimbrels also tend to occur with other waders more frequently as over 20% of those passing Worthing were associated with other species compared with less than 5% of Bar-tailed Godwits.

Grey Plover, Dunlin and Sanderling are also recorded each spring and for the past few years more have been seen from Worthing than other regularly watched sites. This unexplained observation is clearly shown in Table III.

TABLE III. THE TOTAL NUMBER OF WADERS RECORDED MOVING EASTWARD DURING SPRING 1984

	Selsey Bill	*Worthing*	*Brighton*	*Beachy Head*
Grey Plover	60	241	56	34
Dunlin	86	480	103	60
Sanderling	120	650	141	63
Knot	61	136	4	61

Fig. 1 shows the timing of the Grey Plover passage at Worthing. This gradually increases to a peak in mid-May. By this time most wintering Grey Plovers have left the southern estuaries (Prater 1981) and like the Bar-tailed Godwits, this eastward passage probably originates from the African wintering population. Most large movements are noted in east to south-east winds and the numbers involved have increased over the past few years. The largest movement in a single day was of 398 E on 7th May, 1981. Grey Plovers tend to migrate in small flocks with the average for the past few years being 5 birds per flock and the party of 80 which passed Worthing and Brighton on 11th May, 1982 being most exceptional. Furthermore Grey Plovers have the greatest tendency to migrate with other species as over 52% of those seen at Worthing occurred in flocks of mixed wader species.

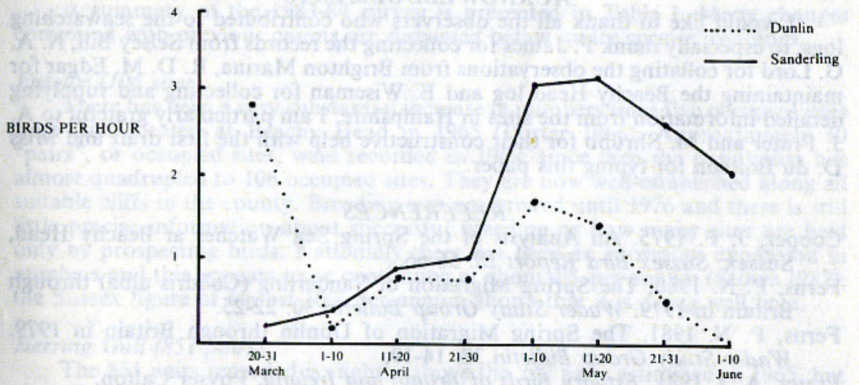

Fig. 2 The rate of eastward passage of Dunlin and Sanderling at Worthing in 10 day periods (1980-1984).

The Sanderling is the third most numerous wader noted during the spring seawatches and the timing of its migration is shown in Fig. 2. Movement gradually increases throughout April with maximum passage in early and mid-May and thereafter a slow decline; migration is still evident in early June. A detailed study of the spring migration of Sanderling through Britain in 1979 (Ferns 1980) showed peak counts on Devon and Hampshire estuaries in mid-May but these counts overshadowed by the large gatherings on the north-west coast of England in mid to late May. Interestingly the same study suggested that passage through east and south-east England was at a maximum in April and subsequently declined through May, therefore the pattern observed at Worthing fits more closely to that seen on the west coast. Ringing recoveries have shown that Sanderling occurring in Britain during May have overwintered in Africa but their destination still remains unclear.

Fig. 2 also shows the timing of the eastward passage of Dunlin; the movement is at its best in late March, low numbers are recorded in early April and passage increases to a second but lower peak in early May. Undoubtedly some passage starts before late March but prior to the mid-March departure of birds wintering on the beaches at Worthing it is difficult to separate local tidal movements from migration. Dunlin migration is particularly complex as several races are found in Britain during the spring. The March peak probably represents eastward movement of the wintering race *alpina* out of Britain into Europe. Detailed studies of the later spring reveal peak counts on the estuaries of both Southern and Western Britain to be in early May (Ferns 1981) and involve birds of the races *schinzii* and *arctica* bound mainly for breeding grounds in Iceland and Greenland. This view is supported by the observations of departing spring Dunlin taking a north to north-west bearing from the Hampshire/Sussex harbours (Steventon 1977) and from Sandwich Bay (Ferns 1981). However the early May peak of Dunlin migrating eastwards through the English Channel may also involve birds of the Scandinavian *schinzii* race.

Like other waders both Sanderling and Dunlin are recorded mainly in settled weather, both migrate in small flocks with the average flock of Sanderling passing Worthing containing 5.9 birds per flock compared with the average of 4.3 for Dunlin flocks. About 20% of both these species occur at Worthing in parties of mixed waders.

In conditions when migrating waders are visible from the Sussex coast many other wading species are noted, however their numbers are too small for meaningful analysis.

ACKNOWLEDGEMENTS

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BREEDING SEABIRDS IN SUSSEX

by A. J. Prater

For a coastal county with estuarine saltmarsh, shingle beaches and spits, and substantial cliffs, the seabirds breeding in Sussex have been poorly documented. The first systematic count was of birds breeding on the cliffs (Porter 1966), followed by "Operation Seafarer" in 1969 (Cramp, Bourne and Saunders 1974). Otherwise, the only long-term records come from nature reserves in Chichester, Pagham and Rye Harbours. A national survey of roof-nesting gulls organised in 1976 (Monaghan and Coulson 1977) included data from Sussex. This short paper summarises the results of a breeding seabird survey carried out in 1983-84 by the Sussex Ornithological Society, provides a summary of all available data for the whole county since 1965 and therefore supplements Shrubb (1979).

METHODS

The survey in 1983 and 1984 was based on the number of apparently occupied sites for cliff-dwelling birds; these were mainly counted during the first two weeks of June or a week either side. For terns and Black-headed Gulls, accurate nest-counts were made by the reserve wardens. No attempt was made to measure breeding success. It is quite possible that some species, particularly Herring Gulls, had already lost their nests by the time the survey commenced but clearly territorial birds were also included, so it is believed that most were counted. Past information was extracted from the files held by the SOS.

RESULTS

A summary of the 1983-84 survey is presented in Table I. Many changes compared with previous counts are discussed below under species' headings.

Fulmar (106 sites)

There has been a very substantial increase in numbers since five occupied sites were first located at Beachy Head in 1965 (Porter 1966). Approximately 30 "pairs", or occupied sites, were recorded in 1969; since then the population has almost quadrupled to 106 occupied sites. They are now well-established along all suitable cliffs in the county. Breeding was not proved until 1976 and there is still little precise information about successful breeding or how many sites are held only by prospecting birds. Nationally there has been an enormous expansion in numbers and this appears to be continuing at about 4% per annum (Stowe 1982); the Sussex figure of almost 10% per annum shows that it is doing well here.

Herring Gull (851 pairs)

The 851 pairs recorded is slightly above the 790 pairs estimated in 1965, but virtually identical to the total in 1969. Probably the total population in Sussex has remained static over the last twenty years, although it is undoubtedly much lower than in the 1920s and 1930s when Walpole-Bond (1938) suggested 2,000 pairs breeding between Seaford and Eastbourne.

However, this hides a remarkable change in the nesting sites chosen. Prior to 1950, all birds bred on the coastal cliffs; indeed, Porter (1966) notes that they were confined to the chalk cliffs until 1935, after which the eastern sandstone cliffs were colonised. Table II shows that cliff sites are now little used, particularly along the chalk, and there has been almost a complete switch to nesting on roofs in the main East Sussex towns, especially in the St. Leonards/Hastings area where the first roof-nesting took place in the early 1950s; a detailed study here in 1982-83 has been made available by D. Pankhurst (*in litt.*). The only West Sussex roof-nesters are in Worthing. There has been a rapid national increase (17% per annum in the early 1970s) in the number of roof-nesting gulls (Monaghan and Coulson 1977) and four towns have been colonised in Sussex since their survey in 1976; these are Seaford, Newhaven, Peacehaven and Lewes.

TABLE I. THE NUMBER OF NEST* OR OCCUPIED SITES OF SEABIRDS IN SUSSEX 1983-84

	+FU	HG	LBBG	BHG*	KJ*	CT*	ST*	LT*
Gravel pits and estuarine								
Scotney Court GP	—	1	—	177	—	—	—	—
Northpoint GP	—	20	—	—	—	—	—	—
Rye Harbour GP	—	17	—	70	—	70	—	67
Pagham Harbour	—	—	—	1	—	1	1	4
Chichester Harbour	—	—	—	1069	—	78	36	22
Cliffs — coastal								
Cliff End — Hastings	24	75	1	—	—	—	—	—
Beachy Head-Birling Gap	15	25	—	—	7	—	—	—
Seven Sisters	2	12	—	—	—	—	—	—
Seaford Head	21	18	—	—	—	—	—	—
Newhaven-Peacehaven	24	8	—	—	597	—	—	—
Peacehaven-Saltdean	12	—	—	—	—	—	—	—
Saltdean-Brighton Marina	8	—	—	—	—	—	—	—
Inland								
Hastings roofs	—	215	—	—	—	—	—	—
St. Leonards roofs	—	231	3	—	—	—	—	—
Bexhill roofs	—	52	—	—	—	—	—	—
Eastbourne roofs	—	*c.*50	—	—	—	—	—	—
Seaford roofs	—	*c.*15	—	—	—	—	—	—
Newhaven roofs	—	*c.*10	—	—	—	—	—	—
Peacehaven roofs	—	48	—	—	—	—	—	—
Brighton roofs	—	*c.*24	—	—	—	—	—	—
Lewes roofs	—	2	—	—	—	—	—	—
Worthing roofs	—	*c.*23	1	—	—	—	—	—
Cuilfail Cliff, Lewes	—	5	—	—	—	—	—	—
Chichester GP	—	—	—	—	—	15	—	—
Total	*106*	*851*	*5*	*1317*	*604*	*164*	*37*	*93*

+Abbreviations are: Fulmar, Herring Gull, Lesser Black-backed Gull, Black-headed Gull, Kittiwake, Common Tern, Sandwich Tern, Little Tern.

TABLE II. HABITAT CHOICE OF BREEDING HERRING GULLS IN SUSSEX*

	1965	*1969*	*1976*	*1983/84*
Sandstone cliffs	371	315	nc	75
Chalk cliffs	394	401	nc	63
Roofs/inland	23	106-131	244+	675
Low coast sites	12	39	nc	38
Total	*790*	*861-886*	nc	*851*

*Based on Porter (1966), Cramp *et al.* (1974), Monaghan & Coulson (1977), this study.

While it seems surprising that the cliffs should have been vacated, there are very few stable ledges today, even on the vertical cliffs, and perhaps we now have a softer, more crumbly chalk. In some sections of the chalk local authorities have built promenades below the cliff, mainly for sea-defence purposes, and they have "manicured" the cliffs above to remove loose chunks or irregularities which might fall onto people below. Thus around Peacehaven it seems probable that man has forced birds to nest on roofs and this shift has brought Herring Gulls into conflict with some householders. The trend may well continue as gulls thrive on scraps and refuse which is often readily available in towns.

Lesser Black-backed Gull (5 pairs)

This has always been a scarce breeding bird and its status has hardly changed during the last twenty years from the 2 pairs in St. Leonards and the sandstone cliffs in 1965 and 1969. Today, that area has 4 pairs and another held territory on a Worthing roof.

Black-headed Gull (1,317 pairs)

In the late 1960s the only colony in the county was at Rye Harbour, where between 155 and 350 pairs bred annually, Figure 1, but control measures in 1971 resulted in a rapid decline and from 1975 to 1977, no Black-headed Gulls bred. During the next five years, the maximum number was 20 pairs, but this increased to 70 in 1983, and 311 in 1984. An island left during the extraction of gravel at Scotney Court on the Kent/Sussex border, provided a suitable site and this was colonised in 1979, increasing rapidly to 177 nests in 1983. There is probably little potential for further growth here, unless other islands are created. No Black-headed Gulls have bred on the Midrips since 1954.

At the other end of the county, breeding first occurred on Stakes Island in Chichester Harbour in 1964, but it was not until 1971 that nesting took place again. Figure 1 shows how this colony has grown rapidly with a maximum of 1,536 nests being counted in 1981. Here, too, there is little chance of a major expansion, unless the islands increase in size or height, because high water on summer spring tides submerge most of the saltmarsh each year, so restricting the number of potentially successful nest sites available.

Kittiwake (604 pairs)

This mainly maritime species bred for the first time in the county in 1976, when five nests were discovered on the Newhaven-Peacehaven cliffs. The initial growth of the colony has been documented by James (1981) with numbers rising to 29 in 1977, 76 in 1978, 204 in 1980, 327 in 1981, and 597 in 1983. In 1981, there were also 40 pairs on Beachy Head, but this colony appears to have decreased with only 7 pairs in 1984, presumably they have been drawn into the large Newhaven concentration. Many Kittiwake colonies increase dramatically initially, and it will be very interesting to see how long this happens here. Coulson (1983) has shown that the national trend of a 3-4% increase of the species annually up to 1970, has now stopped and many western colonies now show a slow decline, although overall a 1% increase has been maintained. In eastern England, however, numbers are still rising rapidly.

Common Tern (164 pairs)

During the last twenty years, there have been only three regular colonies, although occasional birds have bred elsewhere. One colony was established at Chichester Gravel Pits in 1969 and between 9 and 14 pairs now breed annually on rafts provided and maintained by the SOS. Figure 2A shows that numbers in Chichester Harbour have varied between 32 and 89 pairs, with rather more breeding in recent years. At Rye, the colony used to be at Northpoint Gravel Pit; from 1978 it became firmly established at Rye Harbour LNR, Figure 2A. Here they breed on islands managed to provide good conditions and are at least partly protected from predators by electric fencing and wardening. The county total has remained remarkably stable at between 130 and 160 pairs during the last twenty years, except for a period in the mid-1970s, when it was approximately half this total. This is, however, a substantial decrease from the 350+ pairs breeding in Sussex during the 1950s.

Sandwich Tern (37 pairs)

This species bred for the first time in the county in Chichester Harbour in 1975. Figure 1 shows that numbers rapidly increased to the peak of 105 pairs in 1977, but during the last three years they have dropped away rapidly. Probably the regular flooding of recent summers is preventing adequate breeding success and it is hoped that the predicted lower frequency of very high summer tides in the future may help to boost numbers. This species remains very local in southern England, with just one regular colony in each of Kent, Sussex and Hampshire. It is well-known for its rapid fluctuations in numbers and tendency to abandon colonies suddenly; its future is therefore uncertain. After many years during which

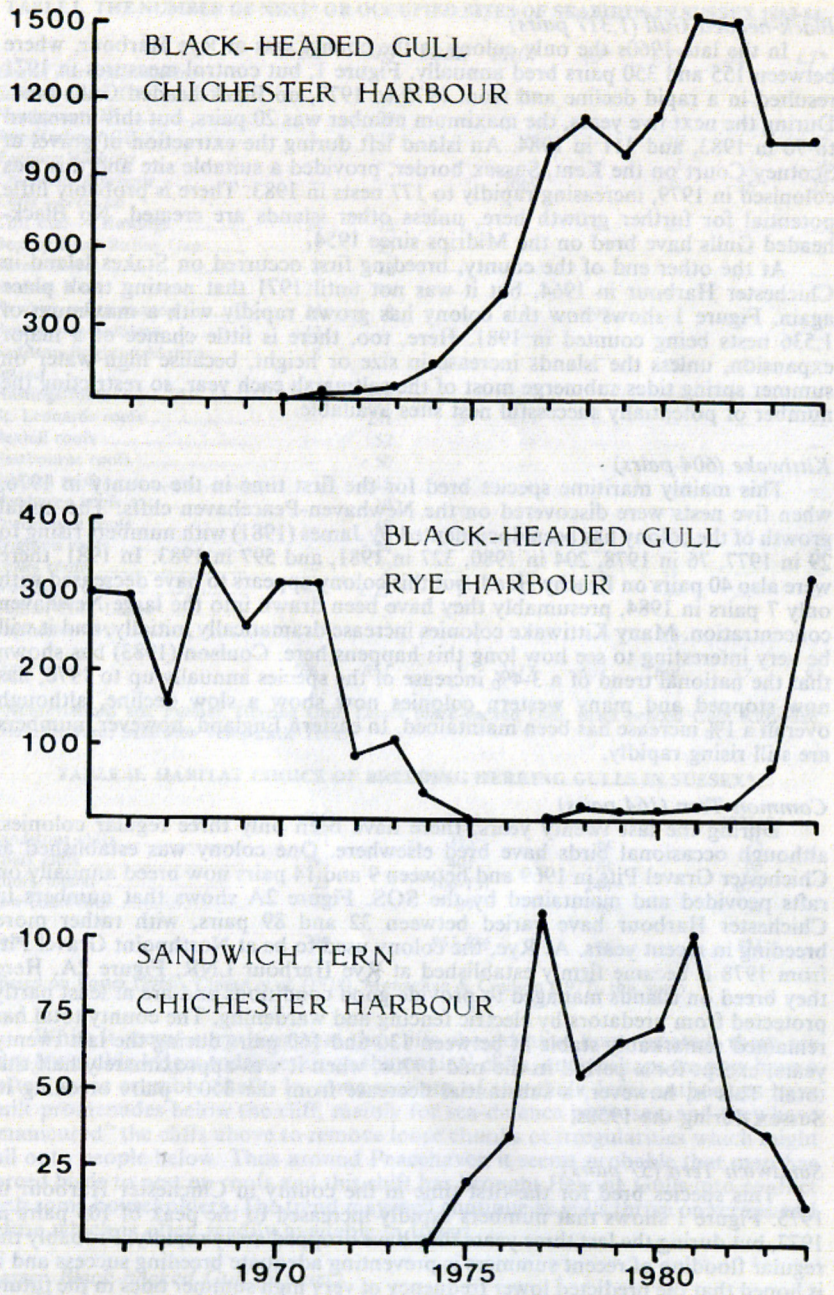

Figure 1. Breeding numbers of Black-headed Gull and Sandwich Tern in Sussex 1965 to 1984.

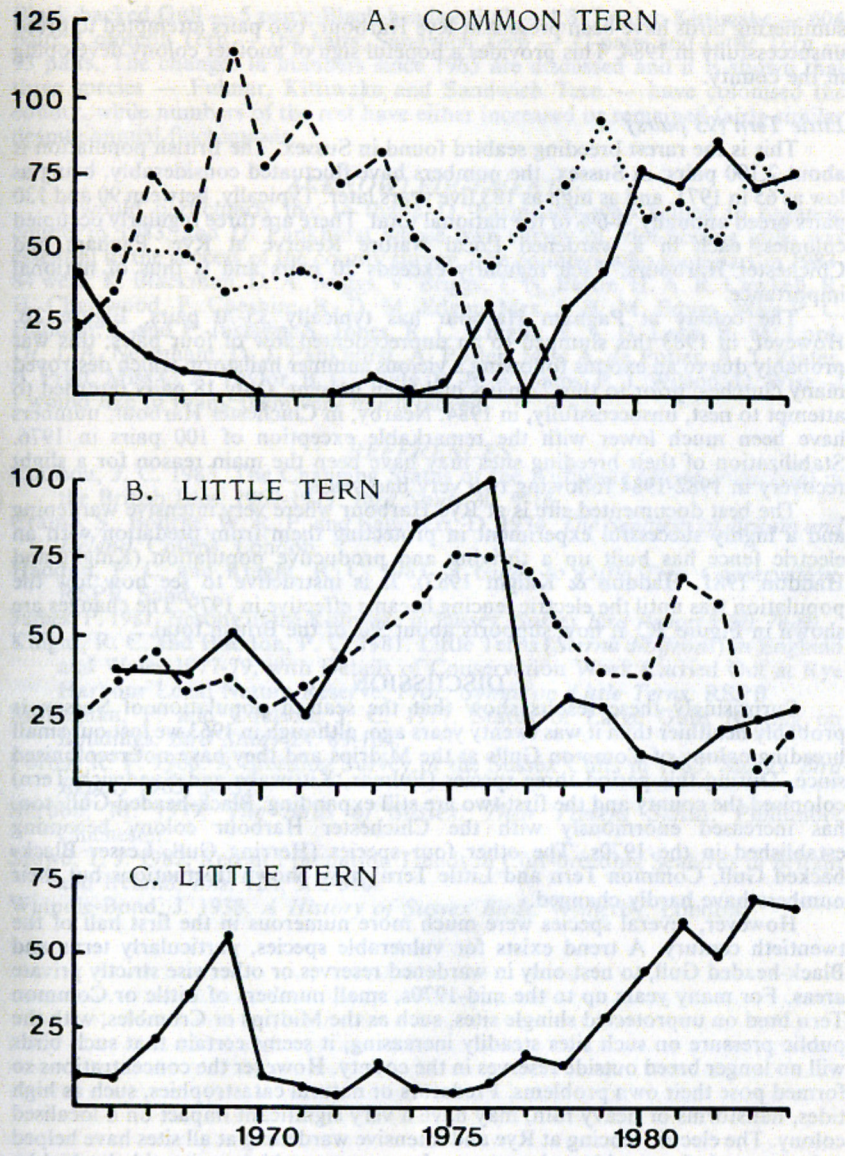

Figure 2. Breeding numbers of Common and Little Terns in Sussex in 1965 to 1984.

Key: A. Rye Harbour
Northpoint GP
Chichester Harbour
B. Chichester Harbour
Pagham Harbour
C. Rye Harbour

summering birds have been present at Rye Harbour, two pairs attempted to breed unsuccessfully in 1984. This provides a hopeful sign of another colony developing in the county.

Little Tern (93 pairs)

This is the rarest breeding seabird found in Sussex. The British population is about 2,100 pairs; in Sussex, the numbers have fluctuated considerably, being as low as 65 in 1971, and as high as 183 five years later. Typically, between 90 and 130 pairs breed annually, 4-6% of the national total. There are three regularly occupied colonies, each in a wardened Local Nature Reserve at Rye, Pagham and Chichester Harbours. Each regularly exceeds 20 pairs and is thus of national importance.

The colony at Pagham Harbour has typically 35-70 pairs, Figure 2B. However, in 1983 this slumped to an unprecedented low of four pairs; this was probably due to an exodus following a vicious summer hailstorm which destroyed many clutches; prior to this 22 pairs had been present. Only 18 pairs returned to attempt to nest, unsuccessfully, in 1984. Nearby, in Chichester Harbour, numbers have been much lower with the remarkable exception of 100 pairs in 1976. Stabilization of their breeding sites may have been the main reason for a slight recovery in 1982-1984 following two very bad years,

The best documented site is at Rye Harbour where very intensive wardening and a highly successful experiment in protecting them from predation with an electric fence has built up a thriving and productive population (Knight and Haddon 1981, Haddon & Knight 1983). It is instructive to see how low the population was until the electric fencing became effective in 1979. The changes are shown in Figure 2C, it now supports about 3% of the British total.

DISCUSSION

Surprisingly these results show that the seabird population of Sussex is probably healthier than it was twenty years ago, although in 1963 we lost our small breeding colony of Common Gulls at the Midrips and they have not recolonised since. During this period three species (Fulmar, Kittiwake and Sandwich Tern) colonised the county and the first two are still expanding. Black-headed Gull, too, has increased enormously with the Chichester Harbour colony becoming established in the 1970s. The other four species (Herring Gull, Lesser Black-backed Gull, Common Tern and Little Tern) have shown fluctuations but their numbers have hardly changed.

However, several species were much more numerous in the first half of the twentieth century. A trend exists for vulnerable species, particularly terns and Black-headed Gull, to nest only in wardened reserves or otherwise strictly private areas. For many years up to the mid-1970s, small numbers of Little or Common Tern bred on unprotected shingle sites, such as the Midrips or Crumbles; with the public pressure on such sites steadily increasing, it seems certain that such birds will no longer breed outside reserves in the county. However the concentrations so formed pose their own problems. Predators or natural catastrophies, such as high tides, hailstorms or heavy rain, may have a very significant impact on a localised colony. The electric fencing at Rye and intensive wardening at all sites have helped to lower predation problems but no warden can stop a high spring tide backed by a strong southerly wind!

Cliff-breeding species depend on good-sized ledges or cavities, and thus these may eventually be a limiting factor to population size. If further cliff-cleaning or grading work is carried out, it could have a substantial impact, even on the apparently successful species such as Fulmar or Kittiwake.

SUMMARY

The 1983-84 breeding seabird survey showed that the populations of the species were: Fulmar — 106 occupied sites; Herring Gull — 851 pairs; Lesser Black-backed Gull — 5 pairs; Black-headed Gull — 1,317 pairs; Kittiwake — 604 pairs; Common Tern — 164 pairs; Sandwich Tern — 37 pairs and Little Tern — 93 pairs. The changes in numbers since 1965 are discussed and it is shown that three species — Fulmar, Kittiwake and Sandwich Tern — have colonised the county, while numbers of the rest have either increased or remained fairly similar despite annual fluctuations.

ACKNOWLEDGEMENTS

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RINGED PLOVERS BREEDING IN SUSSEX

by A. J. Prater

The rapid urban development along the low coast from Selsey to Hastings between 1740 and 1850 (Farrant 1983) had, without doubt, considerably modified potential breeding areas for Ringed Plovers *Charadrius hiaticula* long before detailed observations could be made on the distribution of birds. Despite this, the shingle beaches, spits and coastal gravel pits along the Sussex coast have been recognised as good, or potentially good, breeding areas for the species. Small numbers have also bred, or attempted to breed, sporadically along the southern slopes of the Downs or in coastal fields.

Knox (1849) considered it common along the coast, while Walpole-Bond (1938) noted it to be locally common in suitable habitats. Quite what is meant is not clear but at Thorney Island, East Head and the Crumbles, the only specific sites documented in some detail, the status that Walpole-Bond recorded shows the were more numerous than now, at least in the early years of the twentieth century.

METHODS

The Sussex Bird Reports have summarised data submitted to the Sussex Ornithological Society but inevitably not all sites have been surveyed in each year. Two national surveys have been organised on behalf of the British Trust for Ornithology. The first in 1973 (Prater 1976) was organised in Sussex by Michael Shrubb. This short paper summarises the 1984 survey and draws together past information, so updating Shrubb (1979). The special surveys were carried out from mid-April to mid-July. The recording unit was territorial pairs, conveniently called pairs here. In several sites more pairs displayed initially than remained to breed; for example in 1984 at Widewater there were six on 6th March, five by 8th May, but on 11th June only four continued to attempt to breed. Wherever possible the figure used is the stable population level rather than the peak number.

RESULTS

Table I compares the two surveys and shows that over the 11 years the number of pairs in East Sussex doubled, while in the west of the county there has been a 50% increase. In total the numbers of pairs increased from 70, possibly 72, in 1973 to 128 in 1984. This is an encouraging trend but it does hide several contrasting features.

TABLE I. TERRITORIAL RINGED PLOVERS RECORDED IN THE 1973 AND 1984 SURVEYS

	East Sussex			*West Sussex*	
	1973	*1984*		*1973*	*1984*
Midrips	1	3	Shoreham Beach	—	9
Northpoint GP area	4	6	Widewater	—	4
Rye Harbour	16	46	Pagham Harbour	16	22
Crumbles	nc	3	Bracklesham Bay	nc	4
Cuckmere	1	2	Chichester Harbour	13	23
Newhaven Tidemills	2	3	Chichester GPs	10	—
Brighton Marina	—	3	Downs	1	—
Southwick Beach	5	—			
Downs	1	—			
Total	*30+*	*66*		*40+*	*62*

The principal increase took place at Rye Harbour Local Nature Reserve where numbers trebled, primarily due to the effective protection given to breeding Little Terns by electric fencing. Many pairs of Ringed Plover moved into the fenced areas and bred successfully. There was an increase at Pagham Harbour LNR as well, but 1984 was a particularly bad year; between 1977 and 1983 the average number there was 31 pairs. Other large increases involved ten pairs which bred at East Head, mostly inside the area fenced off by the National Trust for the re-establishment of sand-dune vegetation. Most surprising was the large number breeding on shingle amongst the extensive band of Sea Kale on Shoreham Beach. Apart from this area, the two other new sites were Widewater (colonised in 1979) and Brighton Marina (colonised in 1980), both suffer intense disturbance on occasions, but in most years some young are successfully reared.

The flooding and infilling of Chichester Gravel Pits caused the abandonment of that area, while changes in agricultural techniques, in particular to winter cereal production and encouragement of earlier spring growth, makes it unlikely that downland will ever be a regular breeding area. In most years a few birds hold territory on the Downs, at least three in 1984, for a few days early in the season, but they rarely stay for more than a week. The reasons for the abandonment of Southwick Beach, where they bred both inside and outside the power station complex, are not known.

The other sites (Midrips, Crumbles, Cuckmere Haven, Newhaven Tidemills, Bracklesham Bay and Stakes Islands) have had between one and four pairs each year when counted. Of the habitats chosen 106 (83%) were on shingle, 15 on sand/shingle, 4 on saltmarsh and 3 on man-made areas.

DISCUSSION

Approximately half of the Ringed Plovers breeding in Sussex are found in the Local Nature Reserves at Pagham and Rye Harbours. In the two surveys 64% and 69% of pairs respectively were present in protected sites. Large sections of shingle coast, particularly where there is a promenade, are not used by Ringed Plovers; this has held true for the whole of the twentieth century. The wide semi-natural and vegetated beach at Shoreham, with fortuitously limited access, however, has been colonised.

The increase in numbers, mostly during the early 1980s, is startling considering the pressures on the coastline. In Hampshire, the numbers approximately doubled between 1973 and 1984 (Steventon in press), with a huge increase apparently taking place between 1983 and 1984, while the English total appears, provisionally (Prater unpublished data), to have increased by about 25% to 2,400 pairs over the same period. Peculiarly, breeding success at most sites seems to be very poor. For instance, at Widewater a maximum of only 11 young has fledged between 1980 and 1984 (6 in 1983 alone) from a total of 15 pair-years. Mortality estimates for the country as a whole indicate that each pair needs to rear about one young to the flying stage each year to maintain a stable population

(Pienkowski 1984). It would appear from records sent in to the SOS that few sites in Sussex reach this level, and it may be that the occasional very good year at the main sites provides enough birds to 'top up' those apparently struggling to be successful in more peripheral locations. Table II shows the counts at Rye and Pagham Harbours, and indicates that it is Rye Harbour with its electric fencing that has been particularly successful. It must be remembered, however, that it is very difficult to document accurately the fledging success of precocial birds, and particularly so at sites with large breeding populations.

TABLE II. BREEDING NUMBERS AND FLEDGING SUCCESS OF RINGED PLOVERS AT RYE AND PAGHAM HARBOUR LNRS

	1973	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*
Rye Harbour												
pairs:	16	15	9	10	13	23	17	28	35	36	36	46
young:	?	?	?	?	?	?	13	15	30	38	50	good
Pagham Harbour												
pairs:	16	nc	9	25	30	35	30+	31	35	28	30	22
young:	?	?	?	?	116*	103*	99*	65*	37	20	15	13

*Young hatched, no data on fledging success but may average 45% (Pienkowski 1984).

As Ringed Plovers have managed to maintain, or even increase, their numbers, it probably indicates that they should be able to keep a substantial population level for the foreseeable future. The main aspects of concern arise from urban or industrial developments such as are threatened at the Crumbles or Newhaven Tidemills respectively, an intensification of disturbance in the other unprotected sites such as Widewater, Northpoint or Cuckmere Haven, or erosion/beach modifications as seen in Chichester Harbour or Shoreham Beach. The future of the species in the county is, therefore, probably dependent on the efforts of the wardens in the important Local Nature Reserves.

SUMMARY

The 1984 Ringed Plover breeding survey revealed 128 territorial pairs in Sussex. This is the largest number reported from the county and represents a 76% increase on the 1973 survey. Now 69% of birds breed in protected sites.

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BREEDING HABITATS OF THE LAPWING IN SUSSEX

by M. Shrubb

The Lapwing (*Vanellus vanellus*) has always been regarded as a widespread and fairly numerous breeding bird in open country in Sussex, although recent standard works refer to a long-term decline (Walpole-Bond 1938; des Forges & Harber 1963; Shrubb 1979). Virtually all the Lapwings breeding in Sussex now nest on land used for agriculture and changes in agricultural practice are most usually described as the main reason for the species' steady decline. This paper reports on a breeding survey by the Sussex Ornithological Society in 1984, which aimed to clarify the impact of changing agricultural practice.

METHODS

As the aim of the survey was to record breeding habitats and their comparative importance, rather than to estimate the county population, no attempt was made to fully cover the county. Coverage was designed to give a representative sample of coastal farmlands, river valley grasslands, downland farmland and the Weald. Fifteen areas totalling 13,160 hectares (*ha*) were selected and the observers were supplied with a standard recording form and a map and asked to record the numbers of territorial males or nesting birds, the habitats occupied and a full record of the farming practice and habitat of the area covered; the importance of negative reports was particularly stressed. Counts were made during the period 24th March to 15th April inclusive.

RESULTS

Patterns of cropping

Table I summarises the crop habitats recorded in each main division of the county covered. They were almost exactly divided between tilled and grass habitats, with marginally more tilled land examined. Comparison with the June Census of the Ministry of Agriculture (MAFF) shows that the proportion of 51% of tilled land is higher than the overall average of 40% for Sussex, which probably reflects the higher percentage of downland and coastal farmland in the sample. But the proportions of tillage and grass recorded in each major division are an accurate reflection of status, when compared to relevant parish summaries of the June Census. The sample also confirms the importance of grassland in the county's agricultural economy, which is much greater than in many south-eastern and eastern counties, and the dominance of autumn cultivation in tilled land. This comprised 72% of the tilled area of the sample compared to 68% for Sussex as a whole shown by the June Census.

TABLE I. THE DISTRIBUTION AND PROPORTION OF CROP HABITATS RECORDED IN 13,160 HECTARES OF SUSSEX FARMLAND IN 1984

Crop	*Coastal farmland*	*Downland*	*River valleys*	*Wealden farmland*
Autumn cereals	814	2514	756	683
Oil-seed rape	55	0	0	91
Total autumn tillage	*869*	*2514*	*756*	*774*
Spring cereals	60	1134	94	99
Other spring crops	36	58	21	32
Fallow & Stubble	47	191	60	0
Total spring tillage	*143*	*1383*	*175*	*131*
Ley	80	824	301	868
Pasture	123	1112	1535	401
Wet grassland	268	36	110	4
Total improved grass	*471*	*1972*	*1946*	*1273*
Rough grazings	15	607	112	12
Total all crops	*1498*	*6476*	*2989*	*2190*

The classification of grassland habitats always poses problems. The category 'rough grazing', used here and in the June Census, has no standard definition. In the June Census the farmer classifies this on his opinion, which can vary with his perception of his future prosperity (HMSO, 1968). Non-farmers may have a different opinion again. Nevertheless the proportion of rough grazing recorded in the sample agrees quite well with that recorded in the June Census (5.6% *cf* 4.5%). In the instructions to observers wet grassland was defined as grassland with surface water showing during the survey and I have only included areas under this heading when observers specifically noted the point. However much pasture on the coast and in the river valleys in Sussex lies wet in winter and the extent of this category in such a survey will always show annual variations, sometimes very marked, according to spring rainfall.

The numbers of Lapwings

Table II shows the numbers and distribution of nesting Lapwings recorded. Of the total of 279 pairs involved nearly half were found on the coastal plain, where the average density was 11 *ha* per pair, compared to 81 *ha* elsewhere. But such average densities conceal the very uneven distribution. On the coast 56% of all pairs was found on two sites totalling 68 *ha* of old grassland. Such a concentration in coastal areas was also recorded nationally by Smith (1983). On the Downs none was found east of the River Adur and most pairs were located in the block enclosed by Cissbury-Chanctonbury-Steyning Round Hill. Only four out of nine Wealden areas visited held pairs and the only river valley area checked to hold reasonable numbers was the Pulborough Brooks.

TABLE II. THE NUMBER OF LAPWING PAIRS RECORDED IN DIFFERENT CROP HABITATS IN SUSSEX IN 1984

	Number of pairs in			
Crop	*Coastal farmland*	*Downland*	*River valleys*	*Wealden farmland*
Autumn cereals	10	11	0	13
Oil-seed rape	0	0	0	0
Total autumn tillage	*10*	*11*	*0*	*13*
Spring cereals	4	41	4	2
Other spring crops	1	1	0	1
Fallow & Stubble	3	5	2	0
Total spring tillage	*8*	*47*	*6*	*3*
Ley	9	9	0	8
Pasture	17	5	2	0
Wet grassland	92	4	23	0
Total improved grass	*118*	*18*	*25*	*8*
Rough grazings	0	2	6	4
Total all crops	*136*	*78*	*37*	*28*

About 56% of all pairs was found in permanent grass, 9% on ley grass (which is an arable habitat) and 35% on tilled land, but the importance of these habitats differed in each division of the county. Thus permanent grass held most pairs on the coast and river valleys, spring tilled land, mainly cereals, on the Downs and autumn cereals in the Weald. Generally there was little correlation between the distribution of nesting birds and the availability of grassland habitats, as a comparison of Table I and Table II shows. Grassland is relatively twice as extensive in the river valleys and the Weald than in the other zones but attracted only 12% of the total population, compared to 42% on the very small grassland area visited at the coast. Spring tilled land usually held the highest densities of nesting birds where available but it only comprised 14% of total agricultural use. It is concentrated on the Downs.

There seems little reason to doubt that these variations in habitat selection by Lapwings are caused by agricultural practice and two detailed points should be noted. Observers were asked to note the practice of 'tramlining' autumn cereals, leaving permanent wheelings across the crop along which go all passes of the

sprayer and fertiliser distributor. My thought in asking this question was that it might provide a crude measure of the intensity of management. These wheelings may not be very obvious in the spring but half of all autumn cereals were recorded as tramlined and only four pairs were recorded in such sites. Thus the point merits further investigation. Secondly the bulk of pairs recorded in wet grassland were in areas being grazed by cattle. But cattle are not turned out onto wet ground to graze, as poaching ruins grass. Thus this category needs some redefining and most of these areas seem to be old pastures with permanent or semi-permanent pools, which is not quite the same thing as wet grassland. Such pools are undoubtedly attractive to Lapwings but probably not essential, again raising the probability that standards of management are the crucial factor in area selection.

DISCUSSION

Galbraith and Furness (1983) recorded that Lapwings prefer to nest on bare ploughed land. Redfern (1982) showed that nesting habitat and the feeding habitat for chicks may differ. In Sussex the present survey showed that, although only 23% of pairs were found there, nesting densities were consistently higher in spring tilled land than either grassland habitats or autumn cereals everywhere except on the coast, indicating a distinct preference for spring tillage if available. On the coast records from 1958 show a similar preference for spring tillage until the mid-1970s, when spring tillage declined rapidly from 40% of tillage to 8%; chicks were invariably moved to nearby pasture after hatching. In extensive areas of grassland Lapwings like to nest in well-grazed areas of short grass, which is also preferred by the chicks (Redfern 1982). These points indicate that Lapwings may be affected by changes in agricultural practice in two ways, the availability and choice of nest sites and the availability of suitable feeding areas for chicks. These factors may operate together or independently but the need for feeding areas and nest sites to be fairly close together has probably always limited distribution.

In Sussex, as elsewhere in lowland England, three major changes in agricultural practice in the past 40 years seem likely to have affected Lapwings, the decline in old grasslands, the increasing intensity of and changes in the management of grassland and the steep decline in spring tillage. These changes are summarised in Table III for Sussex for the early 1960s, 1970s and 1980s.

TABLE III. SELECTED CHANGES IN AGRICULTURAL PRACTICE IN SUSSEX, 1960-1984

	Early 1960s	*Early 1970s*	*Early 1980s*
Permanent grass habitats (000 *ha*)	112.2	100.7	101.4
Ley grass (000 *ha*)	60.2	47.0	36.3
Area mown for silage			
Pasture (000 *ha*)	1.0	2.1	24.3
Ley (000 *ha*)	5.3	8.8	
Overall use of Nitrogen			
Pasture *kg/ha*	24.5	81.0	115.0
Ley *kg/ha*	57.0	171.0	207.0
Stocking rates grazing units/000 *ha* all grass	7837	10940	10592
Spring tillage as % total tillage	*c.*76%	*c.*62%	*c.*32%

Notes: Permanent grass habitats include pasture and rough grazings. The statistics for area mown for pasture and ley are no longer separated but the proportion of pasture and ley involved has probably remained fairly constant. Grazing units are calculated as cows x 5 + sheep.

The major change in the timing of tillage has been very recent and it represents one of the most widespread habitat changes on arable farms of the past decade. The overall picture for Sussex for the 1980s shown in Table III from the June Census agrees very well with the present survey (Table I), but the latter underlines the existing regional variations, with spring tillage largely concentrated on the Downs and virtually absent on the coast; it has always been below average on coastal farms in West Sussex, where winter wheat is the primary crop. Altogether this change has affected *c.*28,500 *ha*, 12.5% of the agricultural area of

the county, the only significant Lapwing habitat; regionally the proportion affected is higher and this variation may be particularly important in coastal farmland.

Lapwings now largely shun autumn cereals for nesting (and oil-seed rape, an increasingly important component of tilled land), so this change represents a major loss of potential nesting sites. But this is not the whole story. Lapwings dislike nesting in dense crops if of any height, normally avoiding those more than 8*cm* high, but may breed in crops up to 15*cm* high if the stand is open (Glutz *et al.* 1975 in Cramp & Simmons 1982). Modern autumn cereal management involves three features progressively introduced since about 1969. First is the use of autumn herbicides, which remove competitive weed growth at crop establishment. Secondly a nitrogen dressing is applied much earlier to wheat crops, often mid-February on the Sussex coast for example. Both these factors have encouraged much more rapid growth and tillering in the early spring. More recently autumn cereals have been increasingly planted in September rather than the traditional month of October; this again promotes much lusher stands earlier in spring. This combination of factors means that all but a few autumn cereal crops today are too high and thick by late March to attract nesting Lapwings. Such pairs that do nest do so where poor or difficult soil or bad drainage leaves bare patches or a poor plant stand.

Probably these changes in crop management have been as important in limiting the availability of nest-sites to Lapwings in tilled land as the change in the timing of tillage and, on the Selsey Peninsular, the number of birds nesting in autumn cereals virtually halved with the introduction of this type of husbandry in the mid-1970s. This view is also supported by two points from the present survey. In the Weald autumn cereals attracted most nesting pairs and here difficult soils or drainage quite often produce poor patches in autumn cereal crops, which can be very obvious to anyone travelling through the Weald by train in the spring. Secondly 'tramlining' is strongly associated with the management techniques concerned and only four pairs were found in tramlined cereal fields.

The changes in grassland management are of longer standing. Permanent grassland has been declining in Sussex since the mid-1930s, when there were *c.*202,000 *ha*, compared with half that today. This change on its own represents not only loss of nesting sites but, more importantly, loss of feeding sites for chicks. But again major changes in management have also occurred, which may be equally important. These have involved widespread drainage, an increase of 150% in stocking rates since 1930, reseeding and the rapidly increasing use of nitrogenous fertiliser (Table III).

Such changes actually involve two habitat changes, the lowering of water tables and changes in the type of sward. As the first is usually a prerequisite of the second, separating the impact of each is often very difficult. For the Wet Meadows Survey (see Smith 1983), C. J. Cadbury (*pers. comm.*) noted that dampness of site was the only constant physical feature recorded which influenced the presence or absence of nesting waders. For Lapwings, however, the nature of the sward and the existence of mixed farming systems, which provide preferred nesting sites close to preferred feeding sites for chicks, are probably more important. The species is capable of maintaining itself in quite dry areas where these conditions exist, as shown by the population on the Downs north of Worthing, which is largely isolated and appears self-sustaining. Furthermore modern grassland practice, such as high levels of nitrogenous fertiliser, silage rather than hay and high stocking rates, often strip-grazed in dairying, reduce the attractiveness of grassland to Lapwings irrespective of water levels, for very much the same reason that modern practices do cereals. Thus ley grass, where such management is typical, was the least-used nesting habitat recorded by this survey.

Whatever the precise cause many of the major grassland areas of Sussex were shown by the present survey and the Wet Meadows Survey (see *SxBR* 35: 24-25) to be of little importance to nesting Lapwings today; the highest densities were

noted in old grasslands on the Selsey Peninsular, where no modern management has been introduced and stocking rates are about 30% of the county average.

The general records of the Society (excluding the present survey and the Wet Meadows Survey, for which we hold no earlier comparative data) suggest that nesting densities in the main grasslands declined by 66% between the mid-1950s and the mid-1970s. Since about 1974 overall numbers have recovered to about 48% of 1950s levels; sharp declines have continued in some areas, *eg* the Brede Valley (D. J. Pankhurst *pers. comm.*), so it seems likely that these have been compensated by increases elsewhere. These patterns agree remarkably well with the pattern of agricultural change in grassland shown by Table III; grassland utilisation shown by stocking rates, for example, peaked in 1974 and has stabilised since. In the Weald the species has certainly declined in some areas, *eg* two of the farms covered by the present survey. But again our general records suggest some redistribution may also be involved and the exact extent of any decline is unknown. Distribution on the Downs has always been limited and there are only three nesting records for the Downs east of the R. Adur in our files since 1947. But within its breeding range comparison of the 1984 survey with a long series of counts made in the 1960s and 1970s by Dr. M. Hollings suggests that little overall change may have occurred, despite some quite marked fluctuations. This again underlines the importance of the farming system to Lapwings.

The interactions between changes in management in grass and in tilled land are very difficult to estimate. Pairs nesting on arable fields tend to distribute themselves around suitable feeding sites, which may be much more restricted than the area available for nest location and therefore hold only a few nests. The result of changes in tillage and cereal management on the Selsey Peninsular has been a quadrupling in actual nesting density in these traditional chick feeding areas, *eg* to 0.9 *ha* per pair on Sidlesham Ferry and Ham Marsh. Apparently the species can breed quite successfully in such conditions but it greatly increases its vulnerability to further agricultural change.

However such semi-colonial concentrations are not the rule in Sussex grasslands, a clear indication that a major decline has occurred. If the general densities we have are reasonable, they suggest a decline of two-thirds in grassland alone, without changes in arable farmland or the pattern of mixed farming preferred by Lapwings. Altogether today we know of only four important concentrations of nesting Lapwings, in the area around Chichester and Pagham Harbours, the Arun Valley, on the Downs north of Worthing and in Rye Harbour *SSSI;* perhaps Pevensey Levels should be added to this list. Between them these four areas hold *c.*460 pairs; we have no recent count for Pevensey Levels but there were 86 pairs there in 1972. The recent surveys suggest very strongly that these groups total some 75-80% of the present county population. If any observers know of important concentrations of nesting Lapwings which I have excluded, please record them quickly.

The survey was deliberately concentrated into a short period in March/April. While this is the main nesting period for Lapwings, some birds now shift ground during the breeding season, if conditions in their first choice deteriorate too far. This has been particularly noted in the Brede Valley for example (D. J. Pankhurst *pers. comm.*). This survey has not measured this point but it seems unlikely to affect the overall picture of the species' status.

SUMMARY

Fifteen areas totalling 13,160 *ha* of Sussex farmland were visited to count nesting Lapwings and record habitat use. A total of 279 pairs was counted and coastal grassland was the most important habitat. Away from the coast spring tillage was preferred, especially on the Downs. Rather few pairs were found in the river valleys or Weald. Major changes in agricultural practice have probably resulted in a serious decline of this species, the main population of which may now be confined to five sites.

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WINTERING LONG-EARED OWLS AT A DOWNLAND SITE

by R. Leverton and C. Haskell

Long-eared Owls are scarce in Sussex at all times of the year. Only a handful of pairs are known to breed, but in winter numbers are augmented by immigrants, possibly from the Continent. At least four sites on the Downs in the Brighton and Lewes areas regularly hold wintering birds and one downland coombe near Lewes has held one or more Long-eared Owls in at least eight of the past ten winters. It consists of a dry valley system of about 100 *ha*, with some old deciduous woodland (inhabited by Tawny Owls) and extensive areas of pioneer scrub of very varied age, chiefly hawthorn but also sapling oaks, hazel, elder, dogwood, spindle, buckthorn, blackthorn, gorse and sallow. There are some declining areas of open rabbit-grazed turf, together with cleared glades and rides. The coombe is surrounded by rather poor farmland, mainly cereals but with some grassland.

The Long-eared Owls arrive in late October/early November and leave in late March/early April. Strictly nocturnal, they roost by day in a thicket of elder and hawthorn intertwined with Traveller's Joy. The same thicket, and even the same tree, are chosen for roosting every year, though the owls are not necessarily the same individuals and there are dozens of apparently equally suitable roosting places in the valley.

The owls do not begin to hunt until well into dusk. Long winged and lightly built, they have a characteristically buoyant flight, quartering the scrub at a height of 3 to 10 metres, but frequently dropping down to investigate even small gaps and openings between the bushes. Their progress can be followed along the hillsides by the staccato alarm calls of roosting Redwings, and indeed birds appear to be the main prey during this twilight hunting. Downland scrub is an important winter roost for many passerines, and to see how far the wintering Long-eared Owls' choice of habitat might be influenced by this availability of avian prey an analysis was made of pellets collected at intervals from beneath their roosting tree in winter 1983/84.

About 100 pellets were collected, allowing for fragmented ones. They were

produced by two owls, and covered the period between 11th Nov., when the first owl was sighted, until the departure of the last owl on or about 7th April. The pellets were dissected dry (mainly by CH) and prey items identified with help from Yalden (1977). The minimum number of individuals in the pellets was calculated for each species, using skulls to count the mammals, and beaks, skulls or humeri for the birds. Bird remains could not always be assigned to species, as often the pellets only contained a part of the skeleton, but the size was usually apparent. The value of food items depends upon their weights as well as numbers. To assess the relative importance of the different prey species in the owls' diet, the number of individuals found in the pellets was multiplied by a nominal average weight, and the result expressed as a percentage of the total intake. The results of the pellet analysis are summarised in Table I.

TABLE I. DIET OF LONG-EARED OWLS WINTERING NEAR LEWES, SUSSEX 1983-84 FROM PELLET ANALYSIS

	Number in pellets	*% of prey by number*	*% of prey by weight*
Short-tailed Vole	61	42.96	40.5
Birds	29	20.42	28.6
Bank Vole	24	16.90	15.9
Wood Mouse	22	15.49	14.6
Pygmy Shrew	3	2.11	0.2
Harvest Mouse	2	1.41	0.2
Beetle	1	0.70	—

The prey spectrum, both of species and their relative frequencies, of the present analysis agrees closely with the findings of Glue & Hammond (1974), who examined Long-eared Owl diets from 51 localities throughout Britain. One difference at the Lewes site was that Bank Voles outnumbered Wood Mice in the diet, perhaps reflecting local availability. Bank Voles were more numerous in pellets collected during March and early April, when they venture out into growing cereal crops (personal observations), than in those collected earlier. Secondly, Brown Rats were absent, the nearest farm buildings and straw stacks known to harbour rats in winter being 1 *Km* outside the observed hunting range of the owls. However, the lack of Common Shrews, though abundant in the valley, must have reflected either deliberate choice by the owls or difficulty of capture due to behaviour or habitat. Conversely, Harvest Mice are very scarce in the locality, with no sighting since 1979, yet two were present in the pellets. This compares with just a single specimen identified from 7,761 vertebrate prey items in the national study. Though increasingly scarce in modern farmland, the Harvest Mouse is a frequent prey of owls and Kestrels where it still occurs, as on the Selsey Peninsular (Shrubb 1985).

Only 13 of the 29 birds found in the pellets were positively identified: Dunnock, Robin (3), Fieldfare, Blackbird, Redwing, Great Tit, Chaffinch, Bullfinch (3), and Yellowhammer. The Dunnock, two Robins and the Redwing had been ringed locally. Of the remainder, eight were small to very small softbills, two were *turdus* sp., three *parus* sp., and two were finch types. Glue & Hammond (1974) found a threefold increase of birds in the diet during the autumn and winter months with House Sparrow (59%) and Starling (10%) the main species taken. Neither of these roosted in the valley during the 1983/84 winter, and none occurred in the pellets, but the owls took sufficient birds of other species to make up a percentage of avian prey very similar to that found in the national study.

In conclusion, though birds are an important prey of the Long-eared Owl in winter, most of their food is small mammals and their diet is much like that of other owls. Inter-species rivalry is pronounced in this group, and competition from the heavier and stronger Tawny Owl may be responsible for the scarcity of Long-eared Owls in Sussex. Their use of downland scrub for wintering may also reflect this rivalry. An ability to hunt on the wing amongst low scattered bushes enables Long-eared Owls to exploit a habitat rich in roosting birds and small

mammals that is only marginally suitable for the Tawny Owl, the latter's "sit and wait" technique being better adapted to mature deciduous woodland. Perhaps significantly, in Ireland where the Tawny is absent, Long-eared Owls are common in all wooded habitats.

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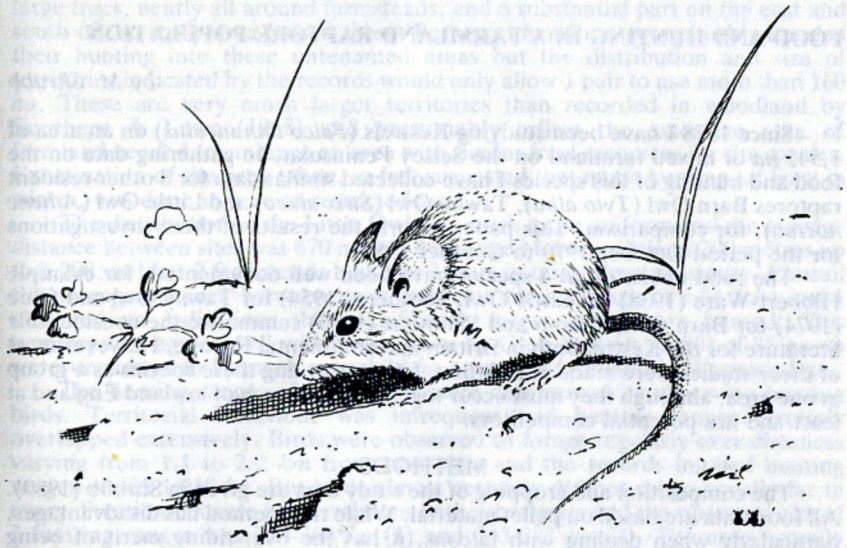

FOOD AND HUNTING IN A FARMLAND RAPTORE POPULATION

by M. Shrubb

Since 1978 I have been studying Kestrels (*Falco tinnunculus*) on an area of 1,545 *ha* of mixed farmland on the Selsey Peninsular. In gathering data on the food and hunting of this species I have collected similar data for 3 other resident raptores Barn Owl (*Tyto alba*), Tawny Owl (*Strix aluco*) and Little Owl (*Athene noctua*), for comparison. This paper reports the results of these investigations for the period October 1979 to October 1981.

The food habits of all 4 species have been well documented, for example Hibbert-Ware (1938) for Little Owl, Southern (1954) for Tawny Owl and Glue (1974) for Barn Owl; Cramp and Simmons (1980) summarise the considerable literature for the Kestrel both in Britain and continental Europe. However most of these studies were made in isolation, few concerning these species as a group in one area, although they must occur together over much of lowland England at least and are potential competitors.

METHODS

The composition and cropping of the study area are given in Shrubb (1980). All food data are based on pellet material. While this method has disadvantages, particularly when dealing with falcons, it has the over-riding merit of being practical for amateur naturalists who have limited time. My methods for pellet analysis and working roosts for Kestrels are set out in Shrubb (1980 and 1982). Essentially the same methods were used for owls but visits to owl roosts were more widely spaced, at intervals of several weeks. The roosts were cleared completely at each visit but only reasonably fresh pellet material was used for analysis to facilitate observation of seasonal patterns. Quantitative observations on hunting were made for Kestrels and to a less extent for Barn Owls, but only a few for Little Owls and none for the more strictly nocturnal Tawny Owl. A census of each species was made each year based on occupied nests or territories.

RESULTS

Number of birds present

The number of adults present in both years was — Kestrels; 5 pairs in 1980,

one of whose hunting range lay partially outside the study area; 3 pairs and 1 unmated bird in 1981. Tawny Owl; 3 definite breeding pairs and 3 other occupied territories, one other pair on the boundary hunted into the study area. Barn Owls; 2 definite breeding pairs and 2 other occupied sites; one other pair and 1 bird on the boundaries hunted into the study area. Little Owl; 19 sites known to be occupied, in which 7 pairs were known to have bred and 4 other pairs were certainly present. Otherwise only single birds, usually calling males, were recorded. I estimated that there were not less than 30 adults since I was uncertain if every occupied site held a pair. Numbers increased after breeding with the presence of young birds, which was only known accurately for Kestrels — 8 in 1980 and 9 in 1981, most of which dispersed in early October.

Hunting ranges

Both Tawny Owl and Little Owl are strongly territorial and I have assumed that the defended territory forms an exclusive hunting range. The average distance between Tawny Owl pairs/sites was 1,260 metres and varied from 770 to 1,610 metres; calling males were recorded at points varying between 280 and 1,050 metres from known or probable nest sites. The average distance between pairs implies territory sizes of *c.*105 *ha* and the areas embraced by calling males give territory sizes of 81-121 *ha*. Distribution, however, coincided with stands of large trees, nearly all around farmsteads, and a substantial part on the east and south of the study area lacked these. Perhaps, therefore, some birds extended their hunting into these untenanted areas but the distribution and size of territories indicated by the records would only allow 1 pair to use more than 160 *ha*. These are very much larger territories than recorded in woodland by Southern & Lowe (1968) and presumably reflect the extensive area of farmland needed to embrace an area with similar food resources for the species. Examination of the prey taken, in fact suggested that much hunting, at least in winter, was done in a quite restricted area.

The distribution of the Little Owl was much more uniform and the average distance between sites was 670 metres but ranged from as little as 200 metres up to 1,200; at least 2 farmsteads had 2 or 3 pairs in quite close proximity. Overall the average distance between pairs implies a territory size of *c.*34.5 *ha* and I observed no indications that significantly larger areas were hunted. This territory size agrees well with those given by Glue & Scott (1980) of 35 *ha* on water-meadows in Hampshire and 38 *ha* on mixed farmland in Warwickshire.

The hunting ranges of Barn Owls were determined by observing hunting birds. Territorial behaviour was infrequent and hunting ranges certainly overlapped extensively. Birds were observed to forage regularly over distances varying from 1.1 to 2.2 *km* from nest sites and the records implied hunting ranges of 485-1,010 *ha*. But birds almost certainly did not range equally far in every direction because of interactions with other pairs and the observed size of 3 hunting ranges was 324-364 *ha* (1) and 243-283 *ha* (2). The area actually searched for prey was almost certainly smaller. As Table II shows, the bulk of observed hunting was confined to field boundaries, roadsides and similar places and rough grassland, which together comprised only 14.5% of the total study area. Each of the hunting ranges above, however, included *c.*25,000 metres of field boundary and I consider that the size of a Barn Owl's hunting range in arable farmland directly related to the length of field boundary available to it. Analysis of their bird prey also suggested that Barn Owls infrequently hunted over cereal fields, at least in winter, as they rarely seemed to take Skylarks which were often present there in very large numbers.

The size of Kestrel hunting ranges is shown in Table I, which also illustrates the habitat composition. The 4 territories in 1980 averaged 305 *ha* and the 3 in 1981, 318 *ha*. The increased average size in 1981 reflected the decline in pairs and thus in territorial activity. Three interesting points emerge from the table. The size of hunting range tends to increase with the area of cereals involved;

TABLE I. OBSERVED SIZE AND COMPOSITION OF KESTREL HUNTING RANGES ON 1545 *HA* OF MIXED FARMLAND ON THE SELSEY PENINSULAR

	Total area (ha)	*Area of cereals (ha)*	*Area of leys & permanent habitat (ha)*	*Average field size (ha)*	*Total fields of more than 8 ha*
1980	214	132	80	5.4	7
	254	113	125	5.4	8
	347	203	87	6.1	13
	420	250	118	6.5	16
1981	278	141	135	5.8	7
	328	232	96	8	16
	346	183	125	6.7	11

these limit summer hunting (Shrubb 1980). Following from that there is significantly less variation in the area of permanent habitat and ley observed to be used by each pair than in the total area covered. Thirdly hunting ranges also tend to increase in size with an increase in the size of fields, which affects the extent and distribution of field boundaries, an important source of prey. These trends were also observed in 1979 when, again, there were important variations in hunting ranges.

Kestrels' hunting ranges also overlapped but never less than 30-40% was defended as territory by each pair and territorial defence therefore places an upper limit on the number of pairs the area can support. Overall my records indicate that a pair of Kestrels must have at least 200-250 *ha* of hunting range in this type of mixed farming terrain and, although birds may range up to 1.8 *km* from nests, an average of some 310 *ha* seems satisfactory for regular successful breeding.

Hunting behaviour

This section is primarily concerned with where these predators take prey. Table II summarises the habitats for 44 hunts by Barn Owls and 570 by Kestrels during the period, marked seasonal, and some annual variations occur in these patterns, at least in Kestrels (Shrubb 1980), and the catholic diet of the Kestrel was clearly reflected in its wider range of frequent hunting habitats. In contrast the Barn Owl's diet was dominated by 2 mammal species, and this concentration is mirrored in its narrow choice of hunting sites. The bulk of the Barn Owl records, however, were for January to June and diurnal activity was particularly rare in autumn, when the prey spectrum was widest. Table III shows that there was a seasonal gradation in the prey spectrum of Barn Owls, suggesting a similar gradation in the sources of prey, which was far less clearly marked in those predators less restricted to mammal prey. This seasonal gradation, together with the high concentration on field boundaries in arable habitats, suggests very strongly that Barn Owls, like Kestrels, are markedly influenced in hunting behaviour by extensive cereal farming.

In contrast to Barn Owl both Tawny and Little Owl are primarily still-hunters; Little Owl takes some prey on the wing, *e.g.* moths and occasionally birds. The likely result is that the hunting activity of both species was mainly limited to the vicinity of hunting perches provided in field boundaries, roadsides, gardens, farmsteads and power and telephone lines; the limited hunting observations made support this. Diet also gives some indication of hunting habitat. In winter 40-50% of the Tawny Owl's food comprised seed-eating passerines and rats. In farmland rats typically summer in fields but winter around farmsteads (Corbet & Southern 1977), where most local sparrow roosts are located. Hence a high proportion of winter hunting activity was probably localised there.

Although the Little Owl will hunt by day I have surprisingly few records,

TABLE II. HUNTING HABITATS RECORDED FOR BARN OWLS AND KESTRELS ON MIXED FARMLAND ON THE SELSEY PENINSULAR

Habitat	*Barn Owl % of 44 hunts*	*Kestrel % of 570 hunts*
Field boundaries	54.5	15.7
Pasture: grazed	4.5	3.7
mown	2.3	2.1
Rough grass & vicinity of buildings	27.3	20.2
Cereal cycle	NR	26.3
Stubbles	NR	11
Leys	9.1	20
Other crops	2.3	1

Notes: NR = not recorded. The cereal cycle takes in cereals from planting to harvest and therefore includes ploughed and newly worked land.

apart from a fairly regular habit in summer of taking beetles on tarmac roads. Most activity observed occurred in the early mornings and late evening and, although they did use the network of power and telephone lines in the area, which are the preferred still-hunting stances of Kestrels, my records suggested they preferred lower perches, such as fences and hedgerow bushes and trees; many more records would be needed to certainly establish this but S. W. M. Hughes (*pers. comm.*) notes that they often hunt from the ground. My records gave little indication of where they actually took prey.

TABLE III. NUMBER OF PREY SPECIES FORMING 10% OR MORE, BY NUMBER OR WEIGHT, OF BARN OWL DIETS BY SEASONS, ON MIXED FARMLAND ON THE SELSEY PENINSULAR

	Autumn Aug./Sept./Oct.	*Winter Nov.-Feb.*	*Spring Mar-mid May*	*Summer Mid May-end July*
Number of Prey species	5	4	3	2
	Short-tailed Vole	Short-tailed Vole	Short-tailed Vole	Short-tailed Vole
	Wood Mouse	Wood Mouse	Bank Vole	Common Shrew
	Rat	Common Shrew	Common Shrew	
	Common Shrew	Rat		
	Birds			

Diet

Table IV summarises the total diets recorded for each species by number of items and by weight of prey taken. In general the primary prey species of each predator are clearly separated, the importance of Short-tailed Voles to both Kestrels and Barn Owls being the most obvious exception. Although bird prey were of primary importance to both Kestrels and Tawny Owls, there was little overlap. The average size of item taken by Tawny Owls was 68% greater and there was an interesting seasonal variation, with Tawny Owls taking smaller birds in winter (average 33.4*g cf* 66.8*g*) and Kestrels smaller birds in summer (average 25.2*g cf* 37.6*g*). The Tawny Owl emerged as a very formidable predator and among food remains I recorded at nests were a Red-legged Partridge, 2 Magpies, a Jackdaw and a Woodpigeon, all presumably taken at the nest at night; these records are excluded from Table IV.

The records underestimate the variety and importance of invertebrate prey. All insect prey are difficult to count completely in pellets and many soft-bodied items, such as caterpillars, tipulids or moths particularly so, if not impossible without microscopic examination, which was not done. But it is a moot point whether the weight of food recorded is actually much affected, since a high percentage of the insect items recorded were indigestible chitinous parts. An important element of invertebrate prey comprised earthworms. Following Yalden (1977) these were recorded on the basis of significant amounts of dirt in

pellets (which, for Kestrels, was closely correlated with field observations of earthworms being taken); 1*g* of dirt was taken to equal 10*g* of earthworm, following the suggestion in Yalden & Warburton (1979).

TABLE IV. THE DIET RECORDED FOR 4 SPECIES OF RAPTORE ON 1545 *HA* OF MIXED FARMLAND ON THE SELSEY PENINSULAR, BY PERCENT OF NUMBER AND WEIGHT

	Barn Owl		*Tawny Owl*		*Little Owl*		*Kestrel*	
Prey Species	*% of total items*	*% of total weight*	*% of total items*	*% of total weight*	*% of total items*	*% of total weight*	*% of total items*	*% of total weight*
Birds	2.4	7	*21.7*	*31.1*	0.6	7.5	18.5	*48.5*
Short-tailed Vole *Microtus agrestis*	*42.9*	*48.8*	7.9	4.4	1.3	14.5	13.7	*23.7*
Bank Vole *Clethrionomys glareolus*	6.9	6	2.9	1.2	0.3	2.7	6.1	8
Water Vole *Arvicola terrestris*	0.5	2.5	NR		NR		NR	
Common Shrew *Sorex araneus*	*22.8*	9.9	2.9	0.6	0.2	0.8	3.5	2.3
Pigmy Shrew *S. minutus*	5.3	1.1	NR		/	/	0.1	.04
Water Shrew *Neomys fodiens*	0.1	0.1	NR		NR		/	/
Rat *Rattus sp.*	3.2	12.1	11.5	*44.1*	0.1	4.1	1.2	5.9
Rabbit *Oryctolagus cuniculus*	NR		2.9	11.6	NR		NR	
Harvest Mouse *Micromys minutus*	3.9	1	5.8	0.7	1.3	3.6	3	1.2
House Mouse *Mus musculus*	1.9	1.3	1.4	0.4	0.75	5.8	1.2	1.2
Wood Mouse *Apodemus sylvaticus*	9.5	9.3	5.1	2.4	2.2	*21.8*	2.8	4.2
Mole *Talpa europeae*	0.1	0.6	NR		NR		/	/
Invertebrates	NR		*36.9*	3.4	*93.1*	*38.6*	*48.8*	4.3
Lizards *Lacertae*	NR		NR		NR		0.9	0.2

Notes: NR = not recorded. / = recorded once only. Weights are taken from Yalden (1977) for mammals, calculated from humeri per Yalden (*op. cit.*) or taken from Dementiev & Gladkov (1951) for birds and Yalden & Warburton (1979) for invertebrates.

It is interesting to calculate how much each predator must theoretically increase its overall killing rate of vertebrate prey to replace these invertebrate items; for Tawny Owl the figure is 3.4%, for Kestrel 4.5% but for Little Owl it is 62%. Clearly, therefore, such prey were of major importance only to the last species. But the rate at which Kestrels took invertebrates varied seasonally; in particular insect prey were very important to juveniles (Shrubb 1982) and earthworms were especially taken in late winter and spring. The nutritional value of such prey may also be greater than the simple considerations of weight imply.

Other interesting seasonal variations occurred. Rats are noted as an important prey species of the Barn Owl in farmland by Glue (1974) but my records showed a strong seasonal pattern, with rats forming 25% of the diet by weight in autumn and early winter but under 10% at other seasons. Tooth wear showed most to be young animals and the species is clearly most vulnerable to Barn Owls when they disperse from fields (see above). Kestrels showed a similar pattern, with rats forming 12% of the diet in the autumn, again mainly young animals but they could kill full-grown rats they could not lift. Very few Wood

Mice were taken by any predator in the summer (mid May-end July), even by Little Owls for which the species was the major vertebrate prey item; at this season Little Owls replaced Wood Mice with Short-tailed Voles.

DISCUSSION

An interesting aspect of the ecology of these birds is how much they compete in this habitat. Typically the owls, at least, are well separated, mainly by habitat but farmland is an artificial habitat comprising an amalgam of small areas of semi-natural features and large areas of intensively managed land. The nature and extent of this management influences most of the fauna.

The observations on which Table IV is based are not uniform for each raptore species. Table V therefore summarises the vertebrate diet of each on a different basis, assuming that each pellet analysed represented 1 day's hunting, to calculate a hypothetical total of prey taken during this period. The result markedly underestimates the total prey weight likely to be needed by each predator but gives equal value to the records for each so changing the perspective. This table confirms that each raptore is primarily feeding from a different group of animals. At the secondary level, however, there seems to be significant competition, Populations of many of the mammals and birds concerned fluctuate seasonally and annually, 2 species, Short-tailed Vole and Harvest Mouse, are cyclic (Corbet & Southern 1977) and the demands of each predator differ, so the situation is complex. Nevertheless the scope for any species to replace temporarily scarce prey items seems limited by the preferences of the other predators.

TABLE V. PERCENTAGE OF PRINCIPAL PREY SPECIES TAKEN BY EACH OF 4 RAPTORE SPECIES ON MIXED FARMLAND ON THE SELSEY PENINSULAR

	% of total taken by:			
Prey species	*Barn Owls*	*Tawny Owls*	*Little Owls*	*Kestrels*
Short-tailed Vole	**59**		15	19
Bank Vole	**33**		**31**	**26**
*total voles**	***54***		***18***	***20***
Common Shrew	**83**			
Pigmy Shrew	**87**			
*total shrews**	***84***			
Rat	**32**	**50**		
Rabbit		**100**		
House Mouse	19		**67**	
Wood Mouse	22		**45**	
Harvest Mouse	14	13	**59**	
total mice	*23*		***61***	
Birds over 40g	20	**57**		22
Birds under 40g		25		**59**
total birds		***35***		***47***

Notes: * includes Water Vole. ** includes Water Shrew. Percentages over 25 are shown in bold; percentages below 12.5 are omitted.

Barn Owl, as a specialist mammal catcher, provides the best example. In 1980 the numbers of Short-tailed Voles and Common Shrews taken by Barn Owls was 35% less than in 1981. To replace this theoretically required a 25% increase in the killing rate of other vertebrate items. The actual figure was *c.*15% and Barn Owls, in these circumstances, turned to positively hunting birds, which comprised 15% of diet by weight in 1980 compared to 4.7% in 1981; the proportion of mammals taken, other than Short-tailed Voles and Common Shrews was *c.*37% in both years. The average size of bird taken was 54.5*g*, very close to that of Tawny Owl and increasing the possibility of competition for food. Short-tailed Voles were in short supply in 1980, when Kestrels raised their already high killing rate of bird prey by 24% and of other mammals by 27%.

Probably a high level of dependence on bird prey in this habitat allows larger populations of both Tawny Owls and Kestrels, normally regarded as predators of small mammals, than would be possible if they behaved more typically. Mikkola (1983) also indicates that some interspecific competition in coexisting owl populations is not uncommon and my records suggest that this occurs in farmland.

A striking point from Table V is the extent to which, for mammal prey, still-hunters (Tawny and Little Owls) concentrated on rats and mice and cruise-hunters (Barn Owl) on voles and shrews. Kestrels habitually hunted in both ways and, although they took fewer mammals than owls, they took proportionately more voles and shrews than Tawny and Little Owls and proportionately more rats and mice than Barn Owls. Probably, therefore, separation in primary prey is basically achieved by different hunting methods, despite the apparent overlap in hunting sites. In particular the sizes of hunting ranges differ sharply, with still-hunters making more intensive use of smaller areas than cruise-hunters, suggesting that they make more use of relatively bare ground for hunting. Much more precise information on prey and hunting habitats is needed to establish this but a still-hunting raptore is usually very inconspicuous and therefore has a better chance of surprising prey away from cover than a cruise-hunting bird.

Study of the species accounts in Corbet & Southern (*op. cit.*) shows marked differences in the activity patterns of the main mammal prey species, both between species and seasons. Thus generally voles and shrews are more diurnal than rats and mice and important prey, for example Bank Voles and Wood Mouse, are more strictly nocturnal in summer than in winter and are more frequently caught in the latter season. Probably, therefore, the timing of hunting also helps to reduce interspecific competition, as indicated by Mikkola (*op. cit.*).

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Divers (except Red- and Black-throated on the coast)
Grebes (other than Great Crested and Little)
Shearwaters
Storm and Leach's Petrels
Shag
Bittern
Purple Heron
White Stork
Spoonbill
Bewick's Swan (other than at Amberley Wild Brooks)
Whooper Swan
Bean and Pink-footed Geese
Garganey
Red-crested Pochard
Long-tailed Duck
Honey Buzzard
Red Kite
Marsh and Montagu's Harriers
Goshawk
Rough-legged Buzzard
Osprey
Peregrine
Quail
Spotted Crake
Corncrake
Stone Curlew
Kentish Plover
Dotterel
Temminck's Stint
Pectoral Sandpiper
Buff-breasted Sandpiper
Phalaropes
Pomarine Skua
Mediterranean and Sabine's Gulls
Iceland and Glaucous Gulls
Roseate Tern
Black Guillemot
Little Auk
Puffin
Hoopoe
Wryneck
Woodlark and Shore Lark
Richard's and Tawny Pipits
Waxwing
Dipper
Bluethroat
Warblers: Cetti's, Savi's, Aquatic, Marsh, Icterine, Melodious, Barred, Yellow-browed
Red-breasted Flycatcher
Golden Oriole
Red-backed Shrike
Raven
Serin
Crossbill
Scarlet Rosefinch
Lapland, Cirl and Ortolan Buntings

In addition: all unusual races of Yellow Wagtail and Rock Pipit.