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Habitat and Related Changes to British Ornithological Sites between 1975-1985

by Robert Hudson

A report from the British Trust for Ornithology to the Nature Conservancy Council in respect of certain work done under contract

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HABITAT AND RELATED CHANGES TO BRITISH ORNITHOLOGICAL SITES BETWEEN 1975 AND 1985

In the mid-1970s, the British Trust for Ornithology, partly under contract to NCC, organised a register of ornithological sites throughout Britain. This was one of the first surveys of this nature, and sites were selected by observers themselves, rather than nationally - but this did mean that the local knowledge of a great many skilled observers was utilised. The national organiser, R J Fuller, developed a system for rating the sites covered as of international, national, regional or lower importance. Whilst this scheme did not coincide exactly with the guidelines for SSSI selection, its rationale was much used by Dr N Moore in his development of NCC's guidelines in 1979, and he discussed the matters with R J Fuller at some length. The BTO study provided a great deal of information for site-safeguard, as well as providing the data-base for Rob Fuller's book "Bird Habitats in Britain" (1982, Poyser), much used by NCC.

The work resulting from the 1981 Act impeded full consideration being given to some of the sites newly identified by the BTO study. By the mid-1980s, NCC Regions were receiving large numbers of requests from RSPB and others in relation to some of these sites and others. However, by this time the information was becoming somewhat dated. NCC and RSPB therefore commissioned BTO to undertake a rapid study to update the habitat information for the more important of the sites in the 1970s' survey. Because of resource constraints, it was not feasible to resurvey the ornithological interest, but observers were asked to note any changes of which they were aware.

The site details resulting from this Review have been supplied to NCC Regions and CHQs. The present report is concerned with an overview of changes and a general examination of differences in relation to region, habitat and protection status. Some provisos are important and should be borne in mind throughout.

First, a survey of this nature inevitably involves a subjective element. However, the observers concerned were experienced ornithologists, and the professional biologists at BTO, NCC and RSPB who planned and coordinated this review have great experience in extensive surveys of this nature, and their limitations. Observers were required to be quite specific about the nature of changes and to detail these, especially by maps.

Second, in relation to protected status, boundaries of this rarely relate to survey site boundaries. This was particularly true in earlier years, when ownership tended to play a larger role in determination of the limits of

protected status than did natural interest. Consequently, changes within a site listed as protected but outwith the protected part of the site will appear in the analysis as change to a protected site. This means that the values for the frequency of damage (including other potentially adverse changes, such as disturbance) must be regarded with some care, but the comparisons between protected and unprotected sites should be indicative.

Third, it should, however, be noted that the comparisons indicated in the preceding paragraph do not tell us what would have happened to protected sites if they had not been so protected. This is because the protected and unprotected sites are quite obviously not matched samples: conferring some form of protection is an attempt to conserve, not part of a large experiment to investigate effectiveness. Clearly, therefore, protected sites will tend initially to be more natural and less damaged than unprotected sites. It follows that they may well have more potential to be damaged or that damage occurs more easily. There are also other differences in the "samples" which are noted in the report itself.

Both second and third points will tend to lead to underestimates of the effectiveness of protection measures. Bearing these points in mind, it is instructive to consider the main conclusions of the report.

The analysis is of changes which took place from the mid-1970s to the mid-1980s. It is somewhat shocking that about 50% of the sites in Great Britain considered to be the most important to birds suffered adverse changes in this period of about 10 years, when environmental awareness was reaching high levels in the general public.

It is, at first sight, as surprising that there is no difference in the percentage damaged between protected and unprotected sites. The provisos noted above should be borne in mind here, but there is also another feature of importance. The nature of protection being considered is not that conferred by the Wildlife & Countryside Act 1981, but the much lesser level of protection afforded to SSSIs by the National Parks and Access to the Countryside Act 1949. By March 1985, less than 30% of the total SSSI area was protected under the 1981 Act, and most of these sites for only for a few months. In addition, the important Amendments to the Act made in 1985 came into effect only late that year. Thus the comparison concerns 1949 Act SSSIs (and other types of protection) against unprotected. It will be interesting to discover in due course the effects of the increased protection available through the 1981 Act, but obviously this will not be possible for some time.

Especially with this background, it is to be expected that agriculture and afforestation were responsible for over half of the adverse changes, and that the apparent rate of damage did not differ in relation to protection status. This is

because 1949 Act SSSIs gave formal protection only against developments requiring planning permission: agricultural and forestry developments are exempt despite the huge scale of the changes they involve.

Although habitat damage or disturbance affected about 50% of sites, the limited assessments of changes to ornithological value indicate that this was reduced in only 11% of sites. Furthermore, there was a difference in incidence in relation to protection status. Decline in ornithological value occurred in 5% of nature reserves, 9% of other SSSIs, but 20% of unprotected sites. This may mean that damage in "protected" sites tended to be limited to those parts of the study sites not within the protected area and/or that damage was to features of lesser importance to ornithological value. This may, indeed, indicate that 1949 SSSIs were effective to some extent in protecting those features for which the sites were notified, with nature reserves being even more effective.

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31 March 1989

HABITAT AND RELATED CHANGES TO BRITISH ORNITHOLOGICAL SITES BETWEEN 1975-1985

CONTENTS

SUMMARY

1. Ornithological sites of at least regional importance were identified from the Register of Ornithological Sites made in the mid-1970s. In 1985-1986, a total of 999 of these (from a targeted 1,253) was re-examined to assess changes to habitats which had occurred over the 10-year period. Of these sites, 380 had reserve status (whole or in part), 294 were (or included) non-reserve SSSIs, and 325 were other non-reserves (ie. unprotected sites).

2. Fieldworkers' evidence for these 999 sites was that 328 (33%) showed no habitat or related changes, 82 (8%) had experienced beneficial changes (especially from conservation management), 80 (8%) sites showed evidence of minor changes of an adverse nature, and 509 (51%) had experienced more marked degrees of adverse change. In analysis, the cases of beneficial change were grouped with the 'no change' sites, in order to concentrate on the much larger numbers of sites where changes had been of an adverse nature.

3. Adverse changes to habitat structure, land use or disturbance levels were reported from 52% of reserves, 52% of non-reserve SSSIs, and 49% of unprotected sites. Comparing all SSSIs with all non-SSSIs, the proportions showing adverse change were 51% and 50% respectively. Highest levels of such change were reported from South-west and South-east England, East and West Midlands and South-west Scotland, and the lowest from North Wales, North-east and North-west Scotland. Within habitat classes, those of marsh/fen/bog, upland, farmland and urban/artificial had suffered most change, with least in woodland and coastal sites.

4. Coastal sites were most affected in English south coast counties, lowland grassland/heath over the southern half of England (where most such sites occur), and inland water bodies in the two English midlands regions and in North-east England. Urban/artificial sites had experienced more adverse change in the English midlands than elsewhere, while upland sites had changed most in Scotland. In all regions, woodland sites had fared better than other habitat classes.

5. Among causes of change to site quality, the most common were afforestation or tree-felling (26%) and agricultural change (25%), these being the principal factors affecting coastal, woodland, grassland/heath, inland water, upland and farmland sites. Development and disturbance (both at 11%) were next in order of overall importance, and these affected in particular the wetland sites (inland water bodies; marsh/fen/bog; urban/artificial - the latter mainly sand/gravel pits) and the coastal category. In contrast, pollution and fishery management were of lesser significance than might have been expected.

6. When types of adverse change were compared against the different categories of protection status, no clear pattern emerged. None of the differences between protected and unprotected sites reached statistical significance.

7. Despite this high incidence of adverse change to site quality, in terms of habitat alteration or intensified land-use, only 108 sites (11% of the 999 reviewed in 1985-1986) were identified as having depreciated in ornithological value. Some 59% of these were unprotected sites, which emerged as having fared worse than reserves and SSSIs. Only 19 (of these 108) had certainly lost their previous ranking of regional (or higher) importance. These judgements were based on a subjective questionnaire approach, in the absence of detailed ornithological data from the 1985-1986 review.

8. It was clear that the high level of habitat (and related) change that was reported by fieldworkers was not reflected in the numbers of sites considered to have declined in ornithological importance. There seemed to be three reasons (alone or in combination) for this anomaly. In different cases, either (i) habitat damage was localised within large sites, or (ii) some types of impact were less damaging than others, or (iii) changes had affected features other than those which determined ornithological value.

INTRODUCTION

Between the years 1973-1977 the British Trust for Ornithology (BTO) compiled a national Register of Ornithological Sites, mainly with the aid of funding from the Nature Conservancy Council (NCC). Data were gathered on approximately 4,000 sites of ornithological interest in England, Wales, Isle of Man and Scotland. The project organiser devised a classification system (based on three site attributes of population size, diversity and rarity) for ranking the ornithological interest of these 4,000 sites into categories of international, national, regional, county or local significance (Fuller 1980). The Register was not published in detail, due partly to the sheer volume of the material and partly to the confidential nature of some of it, though Fuller (1982) provided a distillation in book form.

In 1985 the NCC and Royal Society for the Protection of Birds (RSPB) jointly commissioned the BTO to conduct a Review of Site Changes, in order to assess the degree of change over ten years to the habitats of the more important ornithological sites which had been identified from the original Register. Questionnaires were circulated to local networks of fieldworkers via the BTO Regional Representatives, in order to obtain updated information on the 1,253 sites which had been identified in the mid-1970s as of at least regional importance for birds; wherever possible, the original observers were asked to update the information.

As well as providing useful background information on the scale of environmental changes taking place, it was also expected that the updated information would help the NCC to decide which sites merited notification (or renotification) as Sites of Special Scientific Interest (SSSIs) on ornithological grounds. Due to the short fieldwork period of this Review (1985-1986) it was inevitable that coverage would be less than complete, especially in western and northern regions; in the event, fresh information was obtained for 80% of the 1,253 sites. At the conclusion of fieldwork a lengthy annotated list of sites was prepared, and issued as a limited-circulation document (Phillips 1986). There was no formal publication of results.

Subsequently (1988), the NCC commissioned a reworking of the Review of Site Changes data, with the objective of producing tabulated summaries of changes to ornithological sites by regions and by habitats. The present Report is the response to that request for an overview.

MATERIALS AND METHODS

A copy of the questionnaire sent to each participant in the Review of Site Changes is included at the back of this Report. This asked for:

site name, county and grid reference;

sketch map showing site boundaries and principal habitats;

summary description of the site and its main ornithological interest;

details of ownership and protection status (17 boxes, to be ticked as appropiate);

whether change had occurred (4 boxes: yes/no/not known/the only change is to site boundaries used in 1985);

description of habitat and management changes to site (where these had occurred);

known changes to the ornithological value of the site.

The following points are relevant to the analysis of the questionnaire data as presented in this Report.

Regional classification

In analysis, counties were grouped into NCC regions; where local authority boundaries did not coincide with those of NCC regions, the site was allocated to the correct region.

Habitat

Each site was allocated to one of nine broad habitat groupings: coastlands; woodlands; lowland grasslands and heaths; inland water bodies (natural and artificial); lowland peatlands and wetlands (marsh/fen/bog); uplands (including blanket bog and coastal moorland); farmland; urban/artificial (disused railway track, parkland, sewage-farm, gravel/sand/clay pit, derelict ground); and composite (no dominant element).

Ownership and protection status

The 17 categories named on the questionnaire included one for "Other: specify below". Inclusion of these "others" brought the total of possibilities to 24; but these had to be grouped on analysis in order to maintain adequate sample sizes. Five groupings were used: national reserves, local reserves, SSSIs with reserve status (therefore overlapping the previous two), non-reserve SSSIs, and other non-reserves; the latter are also referred to as 'unprotected sites'. The 'national reserves' category was taken as those sites owned or managed by the NCC (National Nature Reserves),

RSPB, Wildfowl Trust, Scottish Wildlife Trust, National Trust, N.T. (Scotland), and Manx N.T. The other groupings are self-explanatory, though it should be noted that 'other non-reserves' includes some with statutory limitations on development (eg. National Parks, Areas of Outstanding Natural Beauty, National Scenic Areas - Scotland, and Heritage Coastlines).

Whilst many sites were small, discrete, and within a single ownership/status category, some were large and fell into more than one category (a whole estuary, for example). Such large sites have been entered into the highest category of ownership/protection applicable to the area.

Degree of change

Based on details provided by the observer, each site was placed into one of six categories: (a) no change, (b) minor change, (c) change, (d) major change, (e) no change but boundaries redefined, and (f) no new data. In analysis, (a)+(b)+(e) were treated together (=little or no change), as were (c)+(d) (=much change). A categorisation of causes of change (see below) included five which were likely to be beneficial; these were small-scale tree and hedge planting (14 instances in the data), re-establishment of coppicing (one case), improvement in water quality (11 cases), restoration or landscaping after damage (14 cases), and management for nature conservation (42 cases). These 82 cases were all placed into the 'little or no change' category in order to maintain a distinction from adverse changes, for the latter were much more numerous and were judged more important to this conservation overview. It should be noted, however, that the category of 'much change' (also referred to in the text as 'adverse change') should really be regarded as potentially adverse change, since it does not follow automatically that alteration to one aspect of habitat will damage the ornithological interest of a site (see further under Discussion).

Causes of change

A list of 60 basic causes of change to site quality was defined and coded at the outset (beneficial changes are referred to above). For each site where change had occurred, the most important event was identified from the questionnaire and coded from the standard list; often a site had been affected by more than one change, but only the most significant one was used in analysis. Where no single event was dominant, such sites were classified separately. These event codings were divided into ten broad classes for analysis (see Table 1), and exclude beneficial changes as explained above.

Statistical analysis

No attempt has been made to apply statistical tests to the data presented in this Report. The reasons are that the data do not form a sample in the usual meaning of the term: they represent 80% of the 1,253 sites originally classified as being of at least regional

Table 1. Classification of causes of potentially adverse change to site quality, as used in this Report.

Grouping used	Types of change included
Tree/scrub planting/ clearance	Afforestation; tree felling (large or small scale); replacement of native trees with exotics; overstocking of non-agricultural habitats (reduced regeneration); decreased grazing pressure; invasion of or removal of scrub; invasion by bracken.
Agricultural change	Improved grazing (of grassland and moorland); converting pasture or moorland to arable; deterioration of grassland, cause unstated; other non-agricultural habitats converted to farmland; hedgerow removal.
Wetland change	Loss of freshwater habitat; loss of wetland vegetation; modification of water courses; changed water level in lake/reservoir; coastal land reclamation (eg. of salting); Spartina growth.
Pesticides and pollution	Damaging use of pesticides; rubbish dumping; sewage or waste-water discharge; oil or chemical pollution; aerial pollution (including acid rain); other adverse changes in water quality.
Development and mineral extraction	Mining or quarrying; gravel/sand/clay extraction; peat/turf cutting; laying of pipeline; erecting overhead cables; barrage scheme/dam/weir; urbanisation; road construction; upland trail construction; development for recreation/tourism.
Disturbance	By low-flying aircraft; other military activity; water sports (other than angling); rock-climbing; shooting; trail-bike riding; walking/rambling; other leisure activity.
Physical change	Erosion; silt deposition; site flooded (naturally or artificially); storm damage; fire damage; work to floodbanks/seawalls.
Fishery management	Changed management to freshwater or coastal fisheries; disturbance by anglers; bait digging on shores
Natural succession of habitat	Accreting saltmarsh; development of carr and willow scrub around wetlands; growth from scrub to woodland in other habitats.
Others	Special cases, and where several factors are responsible without any one being dominant.

importance for birds. Furthermore, it is not the aim of this work to establish hypotheses which require statistical testing of the data. The aim is simply to present summary figures which indicate the extent to which habitat and other changes have occurred at important ornithological sites in relation to their protection status, habitat type and geographical location.

Other points

It should be noted that 1985-1986 fieldworkers were not asked to detail bird species and numbers at their sites (as had been done for the 1970s Register), but asked simply to indicate known changes in ornithological interest. The 1985-1986 exercise was designed purely to assess the extent to which habitats had changed since the mid-1970s. Hence the BTO received broad indications of changes (if any) to ornithological quality, but no detail for comparison with the original Register entries.

Data received under the 1985-1986 Review of Site Changes were coded and computerised by Barry N.Phillips, the survey organiser; but all analyses were made by the present author. The data used for analyses were essentially those input in 1986, with only one departure from this. Three years ago the renotification of SSSIs (under the 1981 Wildlife & Countryside Act) was still in its early stages and the Review of Site Changes did not always anticipate outcomes correctly. Hence the opportunity has been taken to update the SSSI entries.

RESULTS

Distribution of sites

A straightforward tabulation of the sites used, divided by NCC region and by habitat class, is given in Table 2. Regional totals of sites are reasonably balanced for England and Scotland (range 73-121, mean 96), though considerably smaller for Welsh regions which are of smaller size anyway. Within habitat classes, the numbers of sites are much more uneven, with 35% in the coastal group and 20% for inland water bodies, but under 3% each for farmland sites and for lowland marsh/fen/bog (and below 1% for the composite category). The high proportions of coastal sites and water bodies reflects the concentration on ornithological sites (which have an aquatic bias), and the exclusion from this study of reserves and SSSIs declared for other biological and geological reasons.

Protection status of sites

Of the 1,253 ornithological sites of national and regional importance, covered by this summary Report, 450 have national or local reserve status (of which 376 are wholly or partially covered by SSSIs), 365 are non-reserve SSSIs, and 438 are unprotected (Table 3). These figures are, respectively, 36%, 29% and 35% of the whole,

Table 2. The distribution of major British ornithological sites, by geographical region and habitat.

Region	Coastal	Woodland	Grassland & heath	Inland water bodies	Lowland marsh/fen	Upland	Farmland	Urban/ artificial	Composite	TOTALS
Southern England	16	24	24	7	3	-	5	15	-	94
South-west England	36	15	18	11	4	4	1	3	1	93
South-east England	30	13	15	18	1	-	6	17	-	100
East Anglia	45	12	17	17	4	-	3	8	1	107
East Midlands	6	22	13	20	5	-	-	24	-	90
West Midlands	3	13	10	25	2	3	3	18	1	78
North-east England	24	13	5	21	1	5	1	3	-	73
North-west England	42	16	5	19	4	12	3	8	4	113
South Wales	12	2	-	3	2	1	1	-	-	21
Dyfed-Powys	14	8	2	4	1	6	-	-	-	35
North Wales	25	1	1	9	-	4	-	-	-	42
South-west Scotland	40	2	2	19	1	24	3	1	-	92
South-east Scotland	28	6	1	34	5	9	6	1	1	91
North-east Scotland	65	4	1	17	-	16	-	-	-	103
North-west Scotland	52	6	1	33	1	27	1	-	-	121
TOTALS	438	157	115	257	34	111	33	99	9	1253
%	35.0	12.5	9.2	20.5	2.7	8.9	2.6	7.9	0.7	

Table 3. Protection status of major British ornithological sites, by habitat (figures in parentheses are percentages)

Habitat	National reserve	Local reserve	SSSI Reserve	SSSI Not		Other non-reserve	
Coastal	147 (33.6)	58 (13.2)	180	131	(29.9)	102	(23.3)
Woodland	23 (14.6)	13 (8.3)	29	42	(26.8)	79	(50.3)
Lowland grass/heath	29 (25.2)	17 (14.8)	41	41	(35.6)	28	(24.4)
Inland water bodies	31 (12.1)	42 (16.3)	54	72	(28.0)	112	(43.6)
Lowland marsh/fen	13 (38.2)	7 (20.6)	19	9	(26.5)	5	(14.7)
Upland	33 (29.7)	5 (4.5)	36	45	(40.5)	28	(25.2)
Farmland	4 (12.1)	3 (9.1)	4	10	(30.3)	16	(48.5)
Urban/ artificial	1 (1.0)	18 (18.2)	8	15	(15.2)	65	(65.7)
Composite	2 (22.2)	4 (44.4)	5	-		3	(33.3)
TOTALS	283 (22.6)	167 (13.3)	376	365	(29.1)	438	(35.0)

Notes. Definition of 'national reserve' is given under Methods.
SSSIs with reserve status overlap the National and Local Reserve figures.
Tables 2 and 3 cover the 1,253 targetted sites (of which 999 were resurveyed in 1985).

which is a notably even spread. The SSSIs, including both with and without reserve status, account for 59% of the 1,253 total.

Within habitat classes the distribution is less even, however. Those with national/local reserve status include 47% of coastal sites and 59% of lowland marsh/fen/bog, but only 21% of farmland sites and 19% of urban/artificial ones. The 'other non-reserves' (ie. excluding SSSIs) range from 66% of urban/artificial down to 15% of lowland marsh/fen/bog. Within the SSSIs (pooling those with and without reserve status), proportions are highest for semi-natural habitats (marsh/fen/bog 82%, upland 73%, lowland grassland/heath 71%) and lowest for utilitarian land uses (farmland 42%, urban/artificial 23%), which is as one would expect. It is also in line with expectation that sites which lack protection include higher proportions for those habitat classes which, by their nature, are used intensively - notably woodland, farmland, inland water bodies (which include reservoirs) and urban/artificial (which include sand/gravel workings).

Geography of site changes

Tabulated summaries of degrees of change to sites (by habitat class and protection status) for each of the 15 NCC regions separately are given in Appendices 1-15, and these data are summarised geographically in Tables 4a and 4b and by habitat classes in Tables 5a and 5b. (In Tables 4a and 5a it has been necessary to combine national and local reserves for reasons of space.) Tables 4a and 5a include the sites for which no new information was received in 1985-1986 (see the 'no data' columns). Since the proportions of these vary erratically between geographical regions and between habitat classes, Tables 4b and 5b present overviews of degrees of change in which 'no data' sites have been excluded from percentage calculations. For clarification, 'no data' entries relate to sites for which 1985-1986 questionnaires were not returned and to those for which questionnaires were returned without updated information. It must also be stressed here that the 'much change' columns in the tables and appendices refer to the potentially adverse changes; beneficial changes are included in the 'little or no change' columns, for reasons explained under Materials and Methods.

In Britain as a whole the proportions of sites showing little or no change versus those showing more substantial change of an adverse nature are almost at parity (49% and 51% respectively: Table 4b). At country levels also the two categories of change are fairly close: England 45% versus 55%, Scotland 54% versus 46%, Wales 59% versus 41%. These are disturbingly high proportions of sites to have been affected by potentially adverse habitat and other changes - half of all sites have been affected to some degree by changes other than those which may be considered beneficial.

Table 4a. Summary of adverse changes to British ornithological sites, by region, 1975-1985

Region	Totals of sites	National & Local reserves			SSSIs not reserves			Other non-reserves			All sites		
		Little or no change	Much change	No data	Little or no change	Much change	No data	Little or no change	Much change	No data	Little or no change	Much change	No data
Southern England	94	17	15	-	19	11	1	7	17	7	43 (45.7)	43 (45.7)	8 (8.5)
South-west England	93	9	12	17	3	9	11	7	8	17	19 (20.4)	29 (31.2)	45 (48.4)
South-east England	100	11	13	7	11	16	6	14	18	4	36 (36.0)	47 (47.0)	17 (17.0)
East Anglia	107	27	21	7	4	10	8	6	10	14	37 (34.6)	41 (38.3)	29 (27.1)
East Midlands	90	11	16	2	9	18	3	8	16	7	28 (31.1)	50 (55.6)	12 (13.3)
West Midlands	78	11	14	5	5	8	5	6	11	13	22 (28.2)	33 (42.3)	23 (29.5)
North-east England	73	16	14	2	5	10	1	14	9	2	35 (48.0)	33 (45.2)	5 (6.8)
North-west England	113	10	23	9	5	4	12	21	13	16	36 (31.9)	40 (35.4)	37 (32.7)
South Wales	21	1	-	6	-	3	7	1	2	1	18 (32.1)	16 (28.6)	22 (39.3)
Dyfed-Powys	35	8	6	1	1	2	1	7	3	6			
North Wales	42	11	9	1	7	2	-	7	3	2	25 (59.5)	14 (33.3)	3 (7.2)
South-west Scotland	92	7	17	1	16	23	1	11	10	6	34 (37.0)	50 (54.3)	8 (8.7)
South-east Scotland	91	21	14	1	19	12	1	8	14	1	48 (52.7)	40 (44.0)	3 (3.3)
North-east Scotland	103	15	14	1	18	13	1	29	12	-	62 (60.2)	39 (37.9)	2 (1.9)
North-west Scotland	121	7	10	10	19	12	13	21	12	17	47 (38.8)	34 (28.1)	40 (33.1)
TOTALS	1253	182	198	70	141	153	71	167	158	113	490 (39.1)	509 (40.6)	254 (20.3)

Notes. Beneficial changes have been incorporated into the 'Little or no change' columns (see Materials and Methods).
Figures in parentheses are percentages.

Table 4b. Summary of adverse changes to British ornithological sites, by region, 1975-1985, excluding 'no data' entries

Region	All sites		Total no. of sites used
	Little or no change	Much change	
Southern England	43 (50.0)	43 (50.0)	86
South-west England	19 (39.6)	29 (60.4)	48
South-east England	36 (43.4)	47 (56.6)	83
East Anglia	37 (47.4)	41 (52.6)	78
East Midlands	28 (35.9)	50 (64.1)	78
West Midlands	22 (40.0)	33 (60.0)	55
North-east England	35 (51.5)	33 (48.5)	68
North-west England	36 (47.4)	40 (52.6)	76
ALL ENGLAND	256 (44.8)	316 (55.2)	572
*South & West Wales	18 (52.9)	16 (47.1)	34
North Wales	25 (64.1)	14 (35.9)	39
ALL WALES	43 (58.9)	30 (41.1)	73
South-west Scotland	34 (40.5)	50 (59.5)	84
South-east Scotland	48 (54.5)	40 (45.5)	88
North-east Scotland	62 (61.4)	39 (38.6)	101
North-west Scotland	47 (58.0)	34 (42.0)	81
ALL SCOTLAND	191 (54.0)	163 (46.0)	354
OVERALL	490 (49.0)	509 (51.0)	999

* The NCC regions of South Wales + Dyfed-Powys have been amalgamated here, due to otherwise small sample sizes.

Table 5a. Summary of adverse changes to British ornithological sites, by habitat, 1975-1985

Habitat	Totals of sites	National & Local reserves			SSSIs not reserves			Other non-reserves			All sites		
		Little or no change	Much change	No data	Little or no change	Much change	No data	Little or no change	Much change	No data	Little or no change	Much change	No data
Coastal	438	90	79	36	51	47	33	46	25	31	187 (42.7)	151 (34.5)	100 (22.8)
Woodland	157	19	11	6	21	14	7	36	25	18	76 (48.4)	50 (31.8)	31 (19.8)
Lowland grass/heath	115	22	18	6	12	21	8	9	9	10	43 (37.4)	48 (41.7)	24 (20.9)
Inland water bodies	257	26	37	10	32	29	11	50	47	15	108 (42.0)	113 (44.0)	36 (14.0)
Lowland marsh/fen/bog	34	8	10	2	2	6	1	-	4	1	10 (29.4)	20 (58.8)	4 (11.8)
Upland	111	5	26	7	17	20	8	6	10	12	28 (25.2)	56 (50.5)	27 (24.3)
Farmland	33	1	4	2	4	5	1	1	9	6	6 (18.2)	18 (54.5)	9 (27.3)
Urban/ artificial	99	8	10	1	2	11	2	17	28	20	27 (27.3)	49 (49.5)	23 (23.2)
Composite	9	3	3	-	-	-	-	2	1	-	5 (55.5)	4 (54.5)	-
TOTALS	1253	182	198	70	141	153	71	167	158	113	490 (39.1)	509 (40.6)	254 (20.3)

Notes. Beneficial changes have been incorporated into the 'Little or no change' columns (see Materials and Methods).
Figures in parentheses are percentages.

Table 5b. Summary of adverse changes to British ornithological sites, by habitat, 1975-1985, excluding 'no data' entries

Habitat	All sites		Total no. of sites used
	Little or no change	Much change	
Coastal	187 (55.3)	151 (44.7)	338
Woodland	76 (60.3)	50 (39.7)	126
Lowland grass/heath	43 (47.3)	48 (52.7)	91
Inland water bodies	108 (48.9)	113 (51.1)	221
Lowland marsh/fen/bog	10 (33.3)	20 (66.7)	30
Upland	28 (33.3)	56 (66.7)	84
Farmland	6 (25.0)	18 (75.0)	24
Urban/ artificial	27 (35.5)	49 (64.5)	76
Composite	5 (55.5)	4 (44.5)	9
OVERALL	490 (49.0)	509 (51.0)	999
Protection status			
National & Local reserves	182 (47.9)	198 (52.1)	380
Non-reserve SSSIs	141 (48.0)	153 (52.0)	294
Unprotected	167 (51.4)	158 (48.6)	325
TOTALS	490	509	999

At regional level also, the same trend is still apparent (Table 4b). Seven regions have between 35%-50% of their sites in the 'much change' category, five regions have between 51%-60% of their sites in that grouping, while the remaining two regions have over 60% of their sites evidencing potentially adverse changes. The highest incidences of 'much change' are those for South-west England (60.5%), South-east England (57%), East Midlands (64%), West Midlands (60%) and South-west Scotland (60%). In contrast, the lowest incidences of adverse change are those for North Wales (36%), North-east Scotland (39%) and North-west Scotland (42%) where, overall, SSSIs and other non-reserve sites have fared reasonably well. Yet it would seem that the geographical distribution of regions which have experienced the higher levels of change to site quality is not wholly explicable in terms of human population density. Thus there has been considerable adverse change to sites in South-west England and South-west Scotland, and proportionately less to those in Southern England, East Anglia and North-east England. A relation also to habitat class is indicated.

Site changes by habitat

Inspection of Tables 5a and 5b shows that the highest overall proportions of adverse change have occurred in the habitat classes of marsh/fen/bog (67%), upland (67%), farmland (75%) and urban/artificial (65%). Conversely, the lowest (but still very considerable) proportional changes have been to woodland (40%) and coastal (45%) sites. In lowland grassland/heath and the inland water bodies the two categories of change differ by little - which indicates that nearly half the sites in each of these habitat classes have experienced potentially adverse changes. Indeed, none of the habitat classes shown in Table 5b has below 40% of sites in the 'much change' category, while this also holds across the categories of protection status.

In attempting further subdivisions of the data into categories of change within habitat classes and within regions, one comes up against the problem of unacceptably small sample sizes. Most habitat classes are represented by too few sites to be treated that way. In Table 6 the figures for adjacent regions have been amalgamated (to indicate still the broad geographical trends) and percentages for adverse change given for those habitat classes which then have adequate sample sizes; figures for remaining habitats are pooled in the 'other habitats' column. This table covers the 999 sites for which new data were obtained in 1985-1986, and on which Tables 4b and 5b are also based.

Potentially adverse change to coastal sites is most pronounced in the English south coast counties, and to a lesser extent in East Anglia and East Midlands; this habitat class seems to have been affected least in Wales and in the northern half of Scotland. Woodland sites have everywhere fared better than those in other habitat classes (see also Tables 5a,b). Lowland grassland/heath has suffered throughout the southern half of England (where the largest concentrations of such sites occur - see Table 2).

Table 6. Percentages of sites showing adverse change, by habitats and regions (adjacent regions pooled to give adequate sample sizes)

Geographical areas	Coastal	Woodland	Lowland grass/heath	Inland water bodies	Upland	Urban/ artificial	Other habitats
South, South-west and South-east England	61.7 (37/60)	39.0 (16/41)	60.5 (23/38)	51.7 (15/29)	ss	46.7 (14/30)	73.7 (14/19)
East Anglia, East and West Midlands	53.7 (22/41)	39.4 (13/33)	60.0 (21/35)	62.0 (31/50)	ss	77.1 (27/35)	52.9 (9/17)
North-east and North-west England	51.1 (23/45)	40.7 (11/27)	30.0 (3/10)	58.3 (21/36)	ss	ss	57.7 (15/26)
Wales	30.6 (11/36)	ss	ss	53.8 (7/13)	ss	ss	50.0 (12/24)
South-west and South-east Scotland	43.5 (27/62)	ss	ss	44.0 (22/50)	74.2 (23/31)	ss	62.1 (18/29)
North-east and North-west Scotland	33.0 (31/94)	ss	ss	39.5 (17/43)	63.6 (21/33)	0	33.3 (4/12)

Notes. Figures in parentheses are numbers of changes and sample sizes. These data are the 999 sites with new information in 1985-1986 (see Tables 4b and 5b).
ss = small sample; included in the 'other habitats' column.

Potentially adverse change to inland water bodies is reported most frequently from the English Midlands (especially the West Midlands region - see Appendix 6), Wales, and northern England (especially the North-east region - see Appendix 7). The urban/artificial class, in practice mainly sand and gravel extraction sites, has suffered more adverse change in East Midlands and West Midlands than elsewhere. Upland sites appear to have changed most in Scotland, though it should be noted that samples of sites in northern England are very small. Remaining habitats are those with small samples of sites everywhere, and it is not safe to generalise about them when subdivided regionally.

SSSIs versus unprotected sites

The two categories of SSSI (reserves, non-reserves), with other non-reserves (unprotected sites) for comparison, are shown in relation to habitat classes in Table 7. The rather surprising result from this comparison is that, when 'no data' sites are excluded from percentages, the unprotected sites appear to have fared no worse (indeed, fractionally better) than the SSSIs. Overall proportions of sites showing little or no change (or beneficial change) are 49% for SSSIs with reserve status, 48% for those without, and 51% for the unprotected sites. Comparing all SSSIs with all non-SSSIs, the proportions showing adverse change were 51% and 50% respectively. This does not necessarily mean, however, that the ornithological interest of protected sites has suffered more than that of unprotected sites (see Discussion).

There are differences between habitat classes. Coastal SSSIs are almost equally divided between the 'little or no change' and 'much change' categories, whereas nearly two-thirds of the unprotected coastal sites have shown little or no change. On the other hand, woodland sites protected by SSSIs (in both categories) have fared better than the unprotected ones. Among lowland grassland/heath sites, those with SSSI plus reserve status have experienced least adverse change, though the non-reserve SSSIs have experienced more changes than those sites which lacked formal protection. Yet among the inland water body sites, the SSSI plus reserve category appears to have fared worst; this is also the case with upland sites, though (for this habitat) the non-reserve SSSIs and unprotected sites have also experienced high levels of potentially adverse change. Similarly, a majority of urban/artificial sites show potentially adverse change, the proportion being most marked in the non-reserve SSSI category.

Comparing non-reserve SSSIs with unprotected sites, the latter category shows fewer changes to urban/artificial (+22%), coastal (+13%) and grassland/heath (+14%), but slightly more change to uplands (-9%), woodlands and inland water bodies (both -1%). The three remaining habitat classes (marsh/fen/bog, farmland, composite) have samples which are too small for effective analysis.

Table 7. Comparison of changes to ornithological SSSIs and non-reserve sites in Britain, 1975-1985.

Habitat type	SSSIs with reserve status			Non-reserve SSSIs			Other non-reserves		
	Little or no change	Much change	No data	Little or no change	Much change	No data	Little or no change	Much change	No data
Coastal	77(51.7)	72(48.3)	31	51(52.0)	47(48.0)	33	46(64.8)	25(35.2)	31
Woodland	18(75.0)	6(25.0)	5	21(60.0)	14(40.0)	7	36(59.0)	25(41.0)	18
Lowland grass/heath	22(61.1)	14(38.9)	5	12(36.4)	21(63.6)	8	9(50.0)	9(50.0)	10
Inland water bodies	20(43.5)	26(56.5)	8	32(52.5)	29(47.5)	11	50(51.5)	47(48.5)	15
Lowland marsh/fen/ bog	9	9	1	2	6	1	-	4	1
Upland	5(16.7)	25(83.3)	6	17(46.0)	20(54.0)	8	6(37.5)	10(62.5)	12
Farmland	1	2	1	4	5	1	1	9	6
Urban/ artificial	3(42.9)	4(57.1)	1	2(15.4)	11(84.6)	2	17(37.8)	28(62.2)	20
Composite	2	3	-	-	-	-	2	1	-
TOTALS	157(49.4)	161(50.6)	58	141(48.0)	153(52.0)	71	167(51.4)	158(48.6)	113

Notes. Percentage figures (per habitat class) are exclusive of the 'no data' sites.
For three habitats, the samples are too small to justify percentage calculations.
As before, beneficial changes are incorporated into the 'Little or no change' columns.

A worrying aspect of the figures already presented (Tables 4a,b, 5a,b, and 7) concerns the high incidence of adverse changes to reserves and SSSIs. However, as explained under Materials and Methods, a site was allocated to the reserve or SSSI classes if even part of it was protected in that way. In cases where site boundaries, as defined in the BTO Register, extended beyond those of included reserves or SSSIs, then the potentially damaging changes noted may have been to unprotected sections. Moreover, SSSI coastal and upland sites are often larger than unprotected sites, and so may be more vulnerable to change. It was impossible to take site size into consideration in this Report, since that parameter had not been asked for on the 1985 questionnaire.

Types of impact on sites

Of the 1,253 sites covered by the 1985-1986 Review of Site Changes, no new data were forthcoming for 254, no change in habitat quality was reported for 328, 82 had experienced beneficial changes, 80 sites showed evidence of minor adverse change, and 509 had experienced more marked degrees of adverse change. This section of the Report deals with the circumstances behind the total of 589 sites for which detectable change of a potentially adverse nature was reported. In conformity with previous sections of this Report, beneficial changes (such as those resulting from active conservation management) are excluded from discussion.

The circumstances of the 589 detectable changes to ornithological site quality are set out, by habitat class, in Table 8; there, the various causes of change are combined into ten broad categories as defined earlier (Table 1). Overall, the largest impacts have been those associated with tree planting or felling (26%) and agricultural changes (25%), followed a long way behind by disturbance and development (both at 11%). These are somewhat misleading, however, for two reasons. Firstly, habitat classes are unequally represented in the data whilst the various causes of change tend to affect some habitats more than others; secondly, and more importantly, some types of change have more impact than others on a site's ornithological value (see further under Discussion).

Some general conclusions can be drawn from the Table 8 figures, as follows:

Coastal (176 sites). Agricultural changes account for 27% of changes to habitat quality, followed by disturbance (16%), physical change (15%) and tree planting/felling (11%). The coastal sites include islands and grazing marshes (in addition to beaches and intertidal mudflats), hence the substantial impact of agriculture and tree planting/clearance. Surprisingly, perhaps, development accounts for no more than 9% of adverse changes.

Woodland (58 sites). Inevitably, forestry practices comprise the most important event for this habitat class (60%), followed by agricultural change (12%) and disturbance (10%).

Table 8. Impacts on British ornithological sites, 1975-1985

Habitat type	Tree/scrub planting/ clearance	Agricultural change	Wetland change	Pesticides & pollution	Development (inc. mineral extraction)	Disturbance	Physical change	Fishery management	Natural succession of habitat	Other impacts & multiple factors
Coastal	20	48	20	8	15	28	26	3	3	5
Woodland	35	7	1	-	4	6	3	-	-	2
Grassland/ heath	18	29	-	1	5	1	4	1	1	1
Inland water bodies	32	20	11	8	9	22	6	11	3	7
Marsh/fen/ bog	2	5	3	-	6	2	2	-	1	-
Upland	30	22	2	-	7	-	-	-	1	1
Farmland	3	12	1	-	2	-	-	1	-	-
Urban/ artificial	9	4	2	9	18	6	4	2	1	1
Composite	1	2	-	-	1	1	1	-	-	-
TOTALS	150	149	40	26	67	66	46	18	10	17
%	25.5	25.3	6.8	4.4	11.4	11.2	7.8	3.0	1.7	2.9

Lowland grassland/heath (61 sites). Equally inevitably, these lowland habitats have been most affected by agricultural change (48%) and tree planting (30%), the latter especially afforestation of heathland tracts. After these, the most significant impact was development, trailing behind at 8%.

Inland water bodies (129 sites). Surprisingly, perhaps, tree planting and felling emerges as the most frequent of adverse changes (25%); an inspection of case histories reveals that this is due largely to afforestation close to lakes (or lochs) and reservoirs, and in river valleys, in Scotland and northern England. Disturbance through water sports is the second most serious factor for inland waters (17%), followed by agricultural change (16%). The impacts of wetland change and fishery management (both at 9%), development (7%) and pollution (6%) were all less than might have been expected; but it must be remembered that only the biggest impact (per site) was coded while in many cases more than one adverse factor was involved.

Marsh/fen/bog (21 sites). In this small sample, most adverse change is attributable to development (29%) and agricultural improvement (24%), with wetland change accounting for only 14%.

Uplands (63 sites). As is to be expected, most change is due to afforestation (48%), followed by reclamation ('improvement') for agriculture (35%). Development (for recreation/tourism, plus upland trail construction) accounts for a further 11% of change to site quality.

Farmland (19 sites). Agricultural change (63%) is the main factor in reduction of site quality (as would be expected), followed by tree planting/loss (16%) and development (11%). Samples are small, however.

Urban/artificial (56 sites). Most of the sites in this category are gravel/sand/clay pits. When mineral extraction is finished, such pits may become nature reserves, or given over to leisure activities, or used as landfill sites. No less than 50% of adverse change can be attributed to flooding (= physical change), subsequent development for leisure pursuits and the resulting disturbance. Nine sites (16%) had been damaged by pollution, these being instances of worked-out pits being used for rubbish tipping. Alterations to tree and scrub cover (also 16%) include the other types of urban/artificial site (disused railway track, parkland).

Impact type is compared against site protection status in Table 9; in this tabulation, some related groups of impacts are pooled to provide adequate sample sizes. One might have expected some important differences between protected and unprotected sites to emerge from this comparison, bearing in mind that some impacts (such as agricultural change and afforestation) do not require planning consent. However, no pattern emerges; none of the differences between protected and unprotected sites reaches statistical significance.

Table 9. Impacts on ornithological sites according to protection status

Category of impact/change	Protected sites (reserves & SSSIs)	Unprotected sites	All sites
Tree/scrub planting/ clearance	99 (24.2)	51 (28.3)	150 (25.5)
Agricultural change	111 (27.1)	38 (21.1)	149 (25.3)
Wetland change) Pesticides and pollution)	41 (10.0)	25 (13.9)	66 (11.2)
Development) Disturbance) Fishery management)	101 (24.7)	50 (27.8)	151 (25.6)
Physical change) Natural succession)	43 (10.5)	13 (7.2)	56 (9.5)
Others	14 (3.4)	3 (1.7)	17 (2.9)
TOTALS	409	180	589

DISCUSSION

The 1985-1986 Review of Site Changes received updated information on 999 (out of a targeted 1,253) ornithological sites of at least regional importance in Britain. Of these, 80 (8%) were reported to have shown signs of minor adverse change to their quality and 509 (51%) to have shown more marked degrees of change. These 509 more seriously affected sites included 52% of the reserves (198 out of 380), 52% of non-reserve SSSIs (153 out of 294), and 49% of unprotected sites (158 out of 325) (Table 5b). These are disturbingly high proportions, so that it is necessary to consider how habitat and related changes may affect the ornithological values of sites.

Reference has already been made (see Materials and Methods) to cases of beneficial change which have been excluded from the principal analyses in this Report. These involved small-scale tree and hedge planting, re-establishment of coppicing, improvement in water quality, restoration or landscaping after damage, and nature conservation management. These 82 cases of beneficial change concerned 28 (34%) national reserves, 25 (31%) local reserves, 8 (10%) non-reserve SSSIs, and 21 (26%) unprotected sites.

There were a further five causes of change which were considered carefully before it was decided to place them in the potentially adverse category. The effects of small-scale tree felling (16 cases) might be small to neutral, depending on the amount of tree cover left standing. Invasion of scrub (7 cases) might or might not be beneficial to birds, depending on the value of the habitat invaded and thereby altered. Removal of scrub (15 cases) is most likely to be harmful to birds (especially warblers), though in some habitats (eg. chalk downland) might result in site improvement where specialised invertebrates and flora are considered to be the more important parts of the biota. Site flooding (12 cases) will often be deleterious, as in sand and gravel workings, but in another situation might be the genesis of a future wetland of importance. Change in lake/reservoir water level (3 cases) will vary in its effect, depending on whether the level rises to drown an attractive margin or falls to expose mud for waders. These circumstances of site change show that there is no clear-cut division between beneficial and adverse; only the obviously beneficial impacts have been separated from the rest in this study.

Even unequivocally adverse change to an aspect of habitat need not necessarily impair the ornithological value of a site as a whole. Many sites that are more than a few hectares in size will comprise a mosaic of habitats, and change may be to features other than those which gave the site its special ornithological value. Moreover, a large site (whether protected or not) can be affected adversely in one sector while retaining its overall ornithological interest because the larger portion of it has kept its integrity. Thus drainage of a coastal grazing marsh may detract little from the

importance of the adjacent estuary for passage and wintering waders and waterfowl, although breeding waders on the grazing marsh itself may decline. A seabird cliff will not lose its value as such no matter how the cliff-top farming regime is changed. Increased summer boating activity on a reservoir may not prejudice excessively its importance for wintering ducks. Water level variations to lakes and reservoirs, pollution, and some types of disturbance are examples of adverse change which may be transitory. In this connection, it must be stressed that the tabulations in this Report include only the single most prominent impact event per site, as identified from the fieldworkers' notes; but the ornithological consequences of different impacts will not be the same, some being potentially much less serious than others.

All three of the possible options considered above (damage localised within large sites, some changes having low impact value, or changes being to features other than those important to ornithological quality) are certainly present in the Review of Site Changes data set. However, it is not practical to attempt a quantification of each since in a proportion of cases they operate in conjunction or with others. Since there is this uncertainty about the effects of different types of change on birds, the observers' assessments of change (if any) to ornithological value need to be considered.

Yet this is not straightforward, either, in the absence of a comprehensive and systematic re-appraisal of the bird communities and populations of the sites concerned. Such data would need to be subjected to uniform criteria comparable to those used by Fuller (1980, 1982) in his pioneer ranking of British ornithological sites. Exact comparison between 1975 (Register of Ornithological Sites) and 1985 (Review of Site Changes) is further fraught by the problem that individual sites will not always have been reported upon by the same fieldworkers. Another problem is that sites may have lost (or experienced reductions in) certain scarce species as consequences of national trends rather than deterioration of those particular sites. Corncrake Crex crex, Nightjar Caprimulgus europaeus and Red-backed Shrike Lanius collurio are examples of species which are in long-term national decline, whilst the numbers of some others (eg. Grey Heron Ardea cinerea and Cetti's Warbler Cettia cetti) fluctuate with the severity of winter weather. Moreover, a site may lose importance for one group of species, but retain its overall ranking because it has enhanced importance for others; for example, there are a number of sites which (between 1975-1985) lost most of their breeding waders, but increased their importance for winter numbers of grey geese Anser spp. (inland) or Brent Geese Branta bernicla (coastal).

Despite these difficulties, an attempt has been made to assess the ornithological significance of the habitat changes reported. In this attempt, the present author had to make his own empirical judgements (based on questionnaire information) as to whether ornithological quality had been reduced or the losses been balanced by gains. Some

classes of site were more readily assessed than others. Decisions could be unequivocal where sites had been allocated regional or national importance for rare species that have since declined or disappeared for local reasons, such as a Suffolk plantation which held breeding Golden Orioles Oriolus oriolus but has since been part-felled, and a Humberside site which held Bittern Botaurus stellaris and Bearded Tit Panurus biarmicus until lowered water level and grazing by livestock damaged the reedbed. Moreover, it was usually evident where wetland sites attracted fewer waterfowl and waders in 1985-1986 than had been the case ten years previously. The biggest difficulties arose in trying to assess where species diversity had been reduced within terrestrial sites; and in that area, in particular, 1985 contributors may have been reluctant to generalise in the absence of fresh systematic fieldwork. In the light of this, it is reasonable to assume that the number of sites identified as having fallen in ornithological interest will be a minimum figure.

At least 108 sites were identified as having depreciated in ornithological value (Table 10). These represented 21% of the 509 sites which had experienced much potentially adverse habitat change, or 11% of the 999 sites for which updated information was received in 1985-1986. They ranged from a minority which had been completely destroyed in value (see later) to a majority which probably retained national or regional importance despite their vicissitudes.

These figures, even though minimal, help to place the consequences of land-use changes into a more realistic perspective. They underscore the fact that habitat and related changes are not necessarily reflected in altered ornithological quality (at least in the short term), for reasons already addressed. The protection status of the affected sites is also revealing. Whereas 52% of reserves (198/380) were reported as having experienced potentially adverse habitat changes (Table 4a), only 5% appear to have lost some of their ornithological value (Table 10). Similarly, 52% of non-reserve SSSIs (153/294) showed physical change, though only 9% had clearly depreciated in ornithological terms. More significantly, 49% of unprotected sites had reported adverse habitat changes (158/325), a slightly lower proportion than for reserves or SSSIs, but almost 20% had declined in ornithological importance. Hence it is clear that, in real terms, the unprotected sites are not faring so well in maintaining their ornithological quality as those covered by practical protection measures, and that this applies across a range of habitat classes.

Included within the 108 sites of reduced ornithological value are 19 which no longer reach regional importance (see Appendix 16), and six of these have been completely destroyed. An East Anglian sewage-farm was modernised (its former lagoons reverted to agriculture), and a Leicestershire gravel pit was in-filled; a Perthshire marsh was used as a spoil dump during nearby road construction; a former site in London's Docklands has been redeveloped; a River Mersey mudbank

Table 10. Habitat and protection status of sites identified as having declined in ornithological value, 1975-1985

Habitat	National reserves	Local reserves	SSSIs not reserves	Other non-reserves	Total
Coastal	3	3	6	12	24
Woodland	-	-	1	4	5
Lowland grass/heath	1	1	6	5	13
Inland water bodies	2	1	4	22	29
Marsh/fen/ bog	1	-	1	3	5
Upland	4	1	4	3	12
Farmland	1	-	2	7	10
Urban/ artificial	-	1	1	7	9
Composite	-	-	-	1	1
TOTALS (%)	12 (11.1)	7 (6.5)	25 (23.1)	64 (59.3)	108
No. of sites with 1985 data	246	134	294	325	999
No. (%) with reduced ornithological value	12 (4.9)	7 (5.2)	25 (8.5)	64 (19.7)	108 (10.8)

eroded away after changes to the main river channel; and a group of ponds in Derbyshire was "completely destroyed" in an unspecified manner. The remaining 13 include four sites which have changed little, physically, but have lost their main ornithological feature (two heronries, two goose roosts); three water bodies have been given over to recreational use that involved destruction of the aquatic vegetation; three sites have been affected severely by afforestation; a once-important heronry has been lost through Dutch elm disease; and two gravel pit complexes are being used for rubbish dumping (in part) and water sports. One of these 19 sites is in part an NNR (and remains so for non-ornithological reasons), while three others were SSSIs which have now been denotified; the remaining 15 sites were unprotected ones.

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Appendix 1 - Status and change in quality of ornithological sites in Southern England, 1975-1985.

Habitat type	No. of sites	National reserves			Local reserves			SSSIs not reserves			Unprotected sites		
		Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data
Coastal	16	4	4	-	1	4	-	1	1	-	-	1	-
Woodland	24	3	1	-	-	-	-	10	2	-	4	4	-
Lowland grass & heath	24	1	2	-	2	1	-	5	7	-	-	3	3
Inland water bodies	7	1	-	-	2	1	-	-	-	1	-	2	-
Lowland marsh/ fen/bog	3	1	-	-	-	1	-	1	-	-	-	-	-
Upland	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmland	5	-	1	-	1	-	-	-	1	-	-	2	-
Urban/ artificial	15	-	-	-	1	-	-	2	-	-	3	5	4
Composite	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTALS	94	10	8	-	7	7	-	19	11	1	7	17	7

Note: Beneficial changes are incorporated into the 'Little change' columns (see Materials and Methods).

Appendix 2. Status and change in quality of ornithological sites in South-west England, 1975-1985.

Habitat type	No. of sites	National reserves			Local reserves			SSSIs not reserves			Unprotected sites		
		Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data
Coastal	36	5	4	3	1	2	5	2	5	4	1	1	3
Woodland	15	-	-	2	-	-	-	-	-	-	3	3	7
Lowland grass & heath	18	2	1	2	-	1	1	-	2	6	-	-	3
Inland water bodies	11	-	-	1	-	-	1	1	1	1	1	2	3
Lowland marsh/ fen/bog	4	-	1	1	-	-	-	-	1	-	-	1	-
Upland	4	-	2	1	-	-	-	-	-	-	-	1	-
Farmland	1	-	-	-	-	-	-	-	-	-	-	-	1
Urban/ artificial	3	-	-	-	1	-	-	-	-	-	2	-	-
Composite	1	-	-	-	-	1	-	-	-	-	-	-	-
TOTALS	93	7	8	10	2	4	7	3	9	11	7	8	17

Note: Beneficial changes are incorporated into the 'Little change' columns (see Materials and Methods).

Appendix 3. Status and change in quality of ornithological sites in South-east England, 1975-1985

Habitat type	No. of sites	National reserves			Local reserves			SSSIs not reserves			Unprotected sites		
		Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data
Coastal	30	3	5	1	1	2	1	3	7	4	1	1	1
Woodland	13	2	-	-	-	-	1	2	2	1	1	4	-
Lowland grass & heath	15	1	1	2	-	1	-	2	2	1	2	2	1
Inland water bodies	18	-	-	-	2	3	-	3	2	-	4	4	-
Lowland marsh/ fen/bog	1	-	-	-	-	-	1	-	-	-	-	-	-
Upland	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmland	6	-	-	-	-	-	1	1	-	-	1	2	1
Urban/ artificial	17	-	-	-	2	1	-	-	3	-	5	5	1
Composite	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTALS	100	6	6	3	5	7	4	11	16	6	14	18	4

Note: Beneficial changes are incorporated into the 'Little change' columns (see Materials and Methods).

Appendix 4. Status and change in quality of ornithological sites in East Anglia, 1975-1985.

Habitat type	No. of sites	National reserves			Local reserves			SSSIs not reserves			Unprotected sites		
		Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data
Coastal	45	10	11	3	4	1	1	-	3	2	1	5	4
Woodland	12	1	-	-	1	-	1	1	1	2	2	1	2
Lowland grass & heath	17	5	2	-	1	-	-	3	2	-	2	1	1
Inland water bodies	17	1	2	1	1	3	1	-	2	2	1	1	2
Lowland marsh/ fen/bog	4	-	1	-	1	1	-	-	-	-	-	1	-
Upland	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmland	3	-	-	-	-	-	-	-	1	1	-	-	1
Urban/ artificial	8	-	-	-	1	-	-	-	1	1	-	1	4
Composite	1	-	-	-	1	-	-	-	-	-	-	-	-
TOTALS	107	17	16	4	10	5	3	4	10	8	6	10	14

Note: Beneficial changes are incorporated into the 'Little change' columns (see Materials and Methods).

Appendix 5. Status and change in quality of ornithological sites in East Midlands (England), 1975-1985.

Habitat type	No. of sites	National reserves			Local reserves			SSSIs not reserves			Unprotected sites		
		Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data
Coastal	6	2	-	-	-	-	-	-	2	1	-	1	-
Woodland	22	1	1	1	1	-	1	4	4	1	2	4	2
Lowland grass & heath	13	1	1	-	-	2	-	-	5	1	1	1	1
Inland water bodies	20	-	1	-	2	6	-	5	-	-	4	2	-
Lowland marsh/ fen/bog	5	3	1	-	-	-	-	-	1	-	-	-	-
Upland	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmland	-	-	-	-	-	-	-	-	-	-	-	-	-
Urban/ artificial	24	-	-	-	1	4	-	-	6	-	1	8	4
Composite	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTALS	90	7	4	1	4	12	1	9	18	3	8	16	7

Note: Beneficial changes are incorporated into the 'Little change' columns (see Materials and Methods).

Appendix 6. Status and change in quality of ornithological sites in West Midlands (England), 1975-1985.

Habitat type	No. of sites	National reserves			Local reserves			SSSIs not reserves			Unprotected sites		
		Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data
Coastal	3	1	-	-	-	-	1	-	-	1	-	-	-
Woodland	13	4	-	-	1	1	-	1	-	1	1	1	3
Lowland grass & heath	10	1	-	-	-	4	1	-	3	-	-	-	1
Inland water bodies	25	-	1	1	-	4	1	4	3	1	1	6	3
Lowland marsh/ fen/bog	2	-	-	-	1	-	-	-	1	-	-	-	-
Upland	3	1	-	-	-	1	-	-	-	1	-	-	-
Farmland	3	-	-	-	-	-	-	-	-	-	-	1	2
Urban/ artificial	18	-	1	-	2	2	1	-	1	1	3	3	4
Composite	1	-	-	-	-	-	-	-	-	-	1	-	-
TOTALS	78	7	2	1	4	12	4	5	8	5	6	11	13

Note: Beneficial changes are incorporated into the 'Little change' columns (see Materials and Methods).

Appendix 7. Status and change in quality of ornithological sites in North-east England, 1975-1985.

Habitat type	No. of sites	National reserves			Local reserves			SSSIs not reserves			Unprotected sites		
		Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data
Coastal	24	5	2	1	3	2	-	4	5	-	1	-	1
Woodland	13	1	2	-	-	2	-	1	1	-	6	-	-
Lowland grass & heath	5	2	-	-	2	-	-	-	-	-	1	-	-
Inland water bodies	21	2	1	1	1	2	-	-	2	1	3	8	-
Lowland marsh/ fen/bog	1	-	-	-	-	-	-	-	1	-	-	-	-
Upland	5	-	1	-	-	1	-	-	-	-	2	-	1
Farmland	1	-	-	-	-	-	-	-	1	-	-	-	-
Urban/ artificial	3	-	-	-	-	1	-	-	-	-	1	1	-
Composite	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTALS	73	10	6	2	6	8	-	5	10	1	14	9	2

Note: Beneficial changes are incorporated into the 'Little change' columns (see Materials and Methods).

Appendix 8. Status and change in quality of ornithological sites in North-west England, 1975-1985.

Habitat type	No. of sites	National reserves			Local reserves			SSSIs not reserves			Unprotected sites		
		Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data
Coastal	42	5	7	3	-	5	3	2	1	6	2	1	7
Woodland	16	-	-	-	-	2	-	-	2	1	8	2	1
Lowland grass & heath	5	1	1	-	-	1	-	-	-	-	1	1	-
Inland water bodies	19	-	-	-	1	4	-	2	-	1	6	4	1
Lowland marsh/ fen/bog	4	1	-	-	-	1	-	-	-	-	-	1	1
Upland	12	-	1	1	-	-	1	1	1	4	1	-	2
Farmland	3	-	-	-	-	-	1	-	-	-	-	1	1
Urban/ artificial	8	-	-	-	-	1	-	-	-	-	2	2	3
Composite	4	1	-	-	1	-	-	-	-	-	1	1	-
TOTALS	113	8	9	4	2	14	5	5	4	12	21	13	16

Note: Beneficial changes are incorporated into the 'Little change' columns (see Materials and Methods).

Appendix 9. Status and change in quality of ornithological sites in South Wales, 1975-1985.

Habitat type	No. of sites	National reserves			Local reserves			SSSIs not reserves			Unprotected sites		
		Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data
Coastal	12	-	-	3	-	-	2	-	2	4	1	-	-
Woodland	2	-	-	-	-	-	-	-	-	-	-	1	1
Lowland grass & heath	-	-	-	-	-	-	-	-	-	-	-	-	-
Inland water bodies	3	-	-	1	-	-	-	-	1	1	-	-	-
Lowland marsh/ fen/bog	2	-	-	-	1	-	-	-	-	1	-	-	-
Upland	1	-	-	-	-	-	-	-	-	1	-	-	-
Farmland	1	-	-	-	-	-	-	-	-	-	-	1	-
Urban/ artificial	-	-	-	-	-	-	-	-	-	-	-	-	-
Composite	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTALS	21	-	-	4	1	-	2	-	3	7	1	2	1

Note: Beneficial changes are incorporated into the 'Little change' columns (see Materials and Methods).

Appendix 10. Status and change in quality of ornithological sites in Dyfed-Powys (Wales), 1975-1985.

Habitat type	No. of sites	National reserves			Local reserves			SSSIs not reserves			Unprotected sites		
		Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data
Coastal	14	2	2	-	3	-	-	-	-	1	2	-	4
Woodland	8	1	-	-	-	-	-	-	-	-	3	3	1
Lowland grass & heath	2	-	-	-	-	-	-	1	-	-	1	-	-
Inland water bodies	4	-	1	-	2	-	-	-	1	-	-	-	-
Lowland marsh/ fen/bog	1	-	-	-	-	-	-	-	1	-	-	-	-
Upland	6	-	3	1	-	-	-	-	-	-	1	-	1
Farmland	-	-	-	-	-	-	-	-	-	-	-	-	-
Urban/ artificial	-	-	-	-	-	-	-	-	-	-	-	-	-
Composite	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTALS	35	3	6	1	5	-	-	1	2	1	7	3	6

Note: Beneficial changes are incorporated into the 'Little change' columns (see Materials and Methods).

Appendix 11. Status and change in quality of ornithological sites in North Wales, 1975-1985.

Habitat type	No. of sites	National reserves			Local reserves			SSSIs not reserves			Unprotected sites		
		Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data
Coastal	25	6	3	-	2	3	-	5	-	-	4	1	1
Woodland	1	-	-	-	-	-	-	-	-	-	1	-	-
Lowland grass & heath	1	-	-	-	-	-	-	-	-	-	1	-	-
Inland water bodies	9	-	1	-	1	-	1	2	2	-	1	1	-
Lowland marsh/ fen/bog	-	-	-	-	-	-	-	-	-	-	-	-	-
Upland	4	2	1	-	-	-	-	-	-	-	-	-	1
Farmland	-	-	-	-	-	-	-	-	-	-	-	-	-
Urban/ artificial	1	-	-	-	-	-	-	-	-	-	-	1	-
Composite	1	-	1	-	-	-	-	-	-	-	-	-	-
TOTALS	42	8	6	-	3	3	1	7	2	-	7	3	2

Note: Beneficial changes are incorporated into the 'Little change' columns (see Materials and Methods).

Appendix 12. Status and change in quality of ornithological sites in South-west Scotland, 1975-1985.

Habitat type	No. of sites	National reserves			Local reserves			SSSIs not reserves			Unprotected sites		
		Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data
Coastal	40	4	9	-	1	1	1	7	7	1	6	1	2
Woodland	2	-	-	-	-	-	-	1	-	-	1	-	-
Lowland grass & heath	2	-	-	-	-	-	-	1	-	-	-	1	-
Inland water bodies	19	1	2	-	1	-	-	2	3	-	4	4	2
Lowland marsh/ fen/bog	1	-	1	-	-	-	-	-	-	-	-	-	-
Upland	24	-	2	-	-	1	-	4	12	-	-	3	2
Farmland	3	-	1	-	-	-	-	1	1	-	-	-	-
Urban/ artificial	1	-	-	-	-	-	-	-	-	-	-	1	-
Composite	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTALS	92	5	15	-	2	2	1	16	23	1	11	10	6

Note: Beneficial changes are incorporated into the 'Little change' columns (see Materials and Methods).

Appendix 13. Status and change in quality of ornithological sites in South-east Scotland, 1975-1985.

Habitat type	No. of sites	National reserves			Local reserves			SSSIs not reserves			Unprotected sites		
		Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data
Coastal	28	10	3	-	3	-	1	4	3	-	-	3	1
Woodland	6	-	-	-	1	-	-	1	1	-	1	2	-
Lowland grass & heath	1	1	-	-	-	-	-	-	-	-	-	-	-
Inland water bodies	34	4	3	-	1	1	-	9	4	1	6	5	-
Lowland marsh/ fen/bog	5	1	1	-	-	-	-	1	1	-	-	1	-
Upland	9	-	3	-	-	-	-	3	2	-	1	-	-
Farmland	6	-	2	-	-	-	-	1	1	-	-	2	-
Urban/ artificial	1	-	-	-	-	-	-	-	-	-	-	1	-
Composite	1	-	-	-	-	1	-	-	-	-	-	-	-
TOTALS	91	16	12	-	5	2	1	19	12	1	8	14	1

Note: Beneficial changes are incorporated into the 'Little change' columns (see Materials and Methods).

Appendix 14. Status and change in quality of ornithological sites in North-east Scotland, 1975-1985.

Habitat type	No. of sites	National reserves			Local reserves			SSSIs not reserves			Unprotected sites		
		Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data
Coastal	65	9	6	1	-	1	-	14	4	1	22	7	-
Woodland	4	1	-	-	1	-	-	-	1	-	1	-	-
Lowland grass & heath	1	1	-	-	-	-	-	-	-	-	-	-	-
Inland water bodies	17	2	1	-	-	-	-	2	5	-	6	1	-
Lowland marsh/ fen/bog	-	-	-	-	-	-	-	-	-	-	-	-	-
Upland	16	1	6	-	-	-	-	2	3	-	-	4	-
Farmland	-	-	-	-	-	-	-	-	-	-	-	-	-
Urban/ artificial	-	-	-	-	-	-	-	-	-	-	-	-	-
Composite	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTALS	103	14	13	1	1	1	-	18	13	1	29	12	-

Note: Beneficial changes are incorporated into the 'Little change' columns (see Materials and Methods).

Appendix 15. Status and change in quality of ornithological sites in North-west Scotland, 1975-1985.

Habitat type	No. of sites	National reserves			Local reserves			SSSIs not reserves			Unprotected sites		
		Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data	Little change	Much change	No data
Coastal	52	4	3	3	-	-	3	9	7	8	5	3	7
Woodland	6	-	2	-	-	-	-	-	-	1	2	-	1
Lowland grass & heath	1	1	-	-	-	-	-	-	-	-	-	-	-
Inland water bodies	33	1	-	1	-	-	-	2	3	2	13	7	4
Lowland marsh/ fen/bog	1	-	1	-	-	-	-	-	-	-	-	-	-
Upland	27	1	3	3	-	1	-	7	2	2	1	2	5
Farmland	1	-	-	-	-	-	-	1	-	-	-	-	-
Urban/ artificial	-	-	-	-	-	-	-	-	-	-	-	-	-
Composite	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTALS	121	7	9	7	-	1	3	19	12	13	21	12	17

Note: Beneficial changes are incorporated into the 'Little change' columns (see Materials and Methods).

Appendix 16. List of sites which, following adverse changes, no longer rank as of national or regional importance

Region	Site	Grid reference
South-east England	Ashenden Heronry (Kent)	TQ902331
	Surrey Commercial Docks (London)	TQ360797
East Anglia	Wisbech sewage farm (Norfolk/ Lincolnshire)	TF475175
East Midlands	Frisby-on-the-Wreake gravel pit (Leicestershire)	SK695184
	Girtford and South Mills gravel pits (Bedfordshire)	TL158503
	Hollowell Reservoir (Northampton)	SP689727
	Wyboston gravel pits (Bedford)	TL175575
West Midlands	Huthwaite Common Road Ponds (Derbyshire)	SK465580
	No Man's Land Marsh (Cheshire)	SJ500830
North-west England	Huggan Ing (Lancashire)	SD795476
	Mere Brow (Lancashire)	SD410180
South Wales	Whitson Heronry (Gwent)	ST373838
North Wales	Cefni Reservoir (Gwynedd: Anglesey)	SH440775
South-east Scotland	Baddinsgill Reservoir (Border: Peebles-shire)	NT128558
	Broomhill Pond/Old English Loch (Tayside: Perthshire)	NO123378
	Dalreoch (Tayside: Perthshire)	NN995171
	Sandy Knowes Pond (Tayside: Perth)	NO140185
North-west Scotland	Loch nan Losganan (Highland: Inverness-shire)	NH500155
	River Strathy and area (Highland: Sutherland)	NC280566

BRITISH TRUST FOR ORNITHOLOGY

REGISTER OF ORNITHOLOGICAL SITES

REVIEW OF SITE CHANGES 1985-1986

PLEASE READ INSTRUCTIONS ON REVERSE AND THEN COMPLETE AS MUCH OF THIS FORM AS POSSIBLE.

1 COUNTY OR SCOTTISH DISTRICT.

2 FULL GRID REFERENCE.

3 SITE NAME

OBSERVER (GROUP) /ADDRESS.

4 CHANGES (tick appropriate box.)

- CHANGE TO SITE. ☐
- NO CHANGE TO SITE. ☐
- NO KNOWLEDGE OF CHANGE TO SITE. ☐
- CHANGE, BUT ORIGINAL MAP ON THE ATTACHED SHEET IS NOW AN INADEQUATE REPRESENTATION AND IS REDRAWN BELOW. ☐

5 SUMMARY OF SITE DESCRIPTION AND MAIN ORNITHOLOGICAL INTEREST.

6 PRESENT SITE STATUS (tick **all** relevant boxes.)

- NATIONAL NR ☐
- RSPB RESERVE ☐
- COUNTY TRUST R ☐
- LOCAL NR ☐
- FOREST NR ☐
- OTHER RESERVE ☐
- SSSI ☐
- COMMON LAND ☐
- FORESTRY COMMISSION ☐
- CROWN ESTATE ☐
- MINISTRY OF DEFENCE ☐
- NATIONAL TRUST ☐
- PRIVATE OWNER ☐
- NATIONAL PARK ☐
- AONB ☐
- HERITAGE COASTLINE ☐
- OTHER STATUS (WRITE BELOW) ☐

7 SKETCH MAP (If possible show the different areas covered by the main habitats and indicate changes using contrasting colours. Show scale, north and the site boundaries.)

8 KNOWN CHANGES TO SITE (Give details of nature of change in habitats or land-use: see over for list of possible changes. Give approximate date of change if known.)

CONTINUED OVERLEAF.

OFFICE USE ONLY

9 KNOWN CHANGES IN ORNITHOLOGICAL INTEREST (If you have no knowledge of any such change, tick this box ☐.)

INSTRUCTIONS FOR COMPLETING THE REVIEW FORM

The Register of Ornithological Sites ran from 1973 to 1977. Since that time many of the Register sites are known to have undergone changes to their habitats, and in some cases to their bird communities. During the winter of 1985-86 the BTO is attempting to record the occurrence of such habitat changes, natural or man-made. This form is designed to be read with the attached copy of the original Register recording card. Please read the following instructions before filling in the form.

1 COUNTY OR SCOTTISH DISTRICT: Please give the present administrative county or Scottish district name.

2 FULL GRID REFERENCE: if a major part of the site has been damaged, then the central point grid reference may have to be changed. Obtain the two-letter prefix and the six-figure grid co-ordinates from the 1 : 50,000 O.S. map (instructions are given on the map).

3 SITE NAME: If there has been a change in the site name since the Register was completed, please give the new name, and if the site is known by more than one name please give the alternatives. If no name is available record the distance and direction of the nearest town or village. Ensure that all names can be identified on the 1 : 50,000 O.S. map.

4 CHANGES: If you have indicated that you have no recent information on the state of the site, or that no change has taken place, you need only proceed if you feel that the original map is an inadequate representation and lacks essential information (see 7.)

5 SUMMARY OF SITE DESCRIPTION AND MAIN ORNITHOLOGICAL INTEREST: Please give a brief statement of the key physical and vegetation characteristics of the site and outline its main ornithological interest.

6 PRESENT SITE STATUS: The status of the site may have changed since the 1970s. Please tick all the known categories applying at present; most are self explanatory. NR and R are abbreviations for nature reserve and reserve respectively. SSSI and AONB are abbreviations for Site of Special Scientific Interest and Area of Outstanding Natural Beauty.

7 SKETCH MAP: Please draw as clearly as possible. Try to show the areas now covered by the main habitats and indicate changes since the original sketch map was drawn, using contrasting colours. If there has been no habitat or land-use change, but you feel that the original map is not a good representation of the site, then we would be grateful if you could redraw the map. Please indicate clearly any revision to the site boundaries.

8 KNOWN CHANGES TO SITE: Please give as much detail as possible about any changes in the habitats and/or use of the site since the Register card was completed in the 1970s. We would be grateful for information on activities such as: afforestation; tree planting; change in woodland management (eg. clear-felling, re-establishment of coppicing, increase in grazing); cultivation of former grassland; conversion of non-farmland habitat to farmland; change in grazing pressure; grassland/moorland improvement, including drainage, re-seeding and use of fertilisers; major use of chemicals, including pesticides; pollution; rubbish dumping; fires or changes in management by burning; hedgerow removal; modification of water courses and associated vegetation; other loss of wetland habitat; reclamation of land from sea, estuary and marsh; quarrying/mineral exploitation; road construction; laying of piplines or cables; other development of the site, including urbanisation; change in disturbance, including recreational activities; natural vegetational changes (eg. scrub invasion, maturation of gravel pits). This list is not exhaustive and you may wish to describe other important changes. State if the site has been restored following a man-made change. Please give the approximate date of each change.

9 KNOWN CHANGES IN ORNITHOLOGICAL INTEREST: It would be helpful if you could discriminate between changes which you believe to be the direct result of habitat changes on the site and those which may be caused by other factors, including natural ones.

Additional Information: A recording form completed in the manner described above provides us with the essential facts for a site. We would, however, welcome any additional information you might have, including photographs (especially aerial ones if available), more detailed habitat descriptions, larger scale maps, references to published work on the site and more detailed information on changes in the bird community and in the way birds use the site.

EVEN IF YOU HAVE NO NEW INFORMATION ON THE SITE, PLEASE RETURN THIS FORM AS SOON AS POSSIBLE (BY 31ST MARCH 1986 AT THE LATEST.)

If you have any queries please contact the NATIONAL ORGANISER, Barry Phillips, REVIEW OF SITE CHANGES, BTO, BEECH GROVE, TRING, HERTS HP23 5NR (Tel: 044 282 3461.)

PLEASE RETURN TO YOUR REGIONAL REPRESENTATIVE OR TO THE NATIONAL ORGANISER (SEE ADDRESS ABOVE.)