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FINAL REPORT

ON THE BTO/BASF

GARDEN BIRD SURVEY

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A report from the British Trust for Ornithology to WWF (UK) in respect of work done under contract for BASF (UK).

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1. EXECUTIVE SUMMARY

The BTO/BASF Garden Bird Survey aimed to collect year-round information on garden birds in the UK, to promote awareness of birds and their conservation to the general public, and to raise the profiles of the BTO and the sponsor, BASF. Total financial support for the work was given by BASF in a sponsorship of £110,000.

The survey started in June 1987 and ran for three full years of fieldwork. A series of press releases and other media contacts served to recruit observers, maintain interest, and promote the BTO and BASF. Six survey newsletters provided regular feedback to participants, and additional publicity material.

The quarterly returns of the data were systematically analysed and statistical analysis is proceeding on a subset of the data. A series of examples illustrates the range of treatments of the data.

Some 10,000 households, press, and educational establishments, received the survey materials. Media coverage achieved comprised: 7 national press, 93 regional press, 65 magazines, 31 newsletters, 3 books, 48 talks, exhibitions, and conferences, 24 radio, and 4 TV. News of the survey reached as far afield as New Zealand and the Gambia.

The survey produced original scientific data of value to the conservation of garden birds. Participation and media coverage presented educational opportunities to many people. The BTO has planned further research and conservation developments to use the data gathered.

2. AIMS

(i) To collect year-round information on the use of gardens by bird species throughout the UK, including occurence, feeding on artificial food, and breeding.

(ii) To achieve good geographic coverage of the UK by recruiting approximately 6,000 participants.

(iii) To derive seasonal and regional patterns of garden use, at a time when other habitats are increasingly being modified.

(iv) To promote awareness of birds and other wildlife to many people, through participation in the project and associated media coverage.

(v) To raise the profile of the BTO and the sponsor, BASF.

3. METHODOLOGY

3:1 RECRUITMENT OF PARTICIPANTS

A press release and other contacts with the media were made at the time of the official launch of the project in August 1987. These resulted in articles in the national and regional press, magazines, and radio interviews. Bill Oddie, who appeared on children's TV for the launch, also made a syndicated radio tape. Continuing publicity based on the results of the survey steadily increased the number of participants so that in total approximately 6,500 people made a contribution during the three years of data collection.

3:2 HANDLING THE DATA

The observations were submitted to the BTO on specially designed computer cards which were put through an Optical Mark Reader machine. The data were then loaded onto the BTO's computer ready for analysis. A suite of programmes were developed which were run on each season's data as it was received.

4. SCHEDULE OF ACTIVITIES

DATES	ACTIVITY
June - August 1987	Launch of project and preparation of materials.
September 1987	Start of 1st year of fieldwork.
March 1988	1st survey newsletter.
August 1988	2nd survey newsletter.
September 1989	Start of 2nd year of fieldwork.
February 1989	3rd survey newsletter.
Spring/Summer 1989	Participants made observations for a a study of the effects of Magpies on songbirds, run by the BTO in conjunction with Sheffield University, and the RSPB.
August 1989	4th survey newsletter, including a request for information on the raiding of milk bottles by Magpies and other members of the crow family.
September 1989	Start of 3rd year of fieldwork.
April 1990	5th survey newsletter including feedback of information on crows and milk.
September 1990	End of 3rd year of fieldwork; 6th survey newsletter, including feedback on the Magpies and songbirds project.
September - November 1990	Final analyses and write up.

5. SCIENTIFIC RESULTS

5:1 SYSTEMATIC ANALYSIS OF QUARTERLY RETURNS

For each season and for each of the thirty-seven species on the computer card, the following analyses have been made:

(i) The weekly percentage of all gardens used and the three monthly means.

(ii) The weekly percentage of suburban (including urban) and rural gardens used.

(iii) The percentage of urban, suburban, and rural gardens in which birds were breeding.

(iv) The percentage of gardens in which birds were taking food put out by observers.

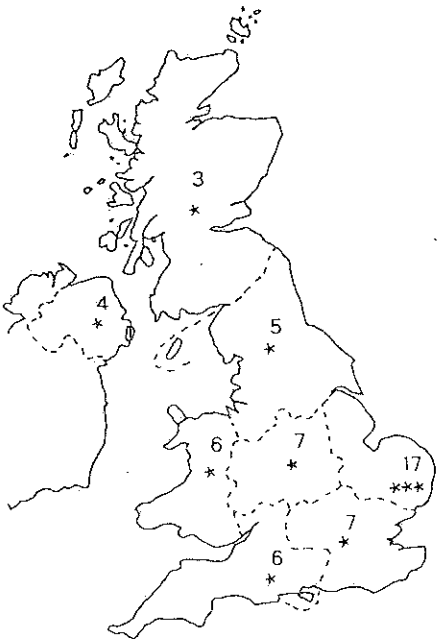
(v) The regional distribution - percentage of gardens in each region in which the different species occurred.

5:2 EXAMPLES

The examples shown on the following pages are intended to highlight the range of treatments of the data, and the dependence of various species on gardens at different times of the year.

A. LINNET

In all parts of the UK Linnets are seen most often in gardens during the summer months - this bird is a partial migrant since part of the population spends the winter in W France and Iberia. Overall, the peak percentage recorded was 9%, but the map shows that there is a concentration in Eastern England. This region is a major grain-growing area so we might expect to find a concentration of a seed-eating bird here. However in recent years changes in agricultural practice have meant that there are fewer small seeds available and Linnet density on farmland has decreased (Marchant et al 1990). Linnets therefore may be resorting to using a wider range of habitats, including gardens, for breeding and post fledging feeding.



Key to Map

Percentage of gardens

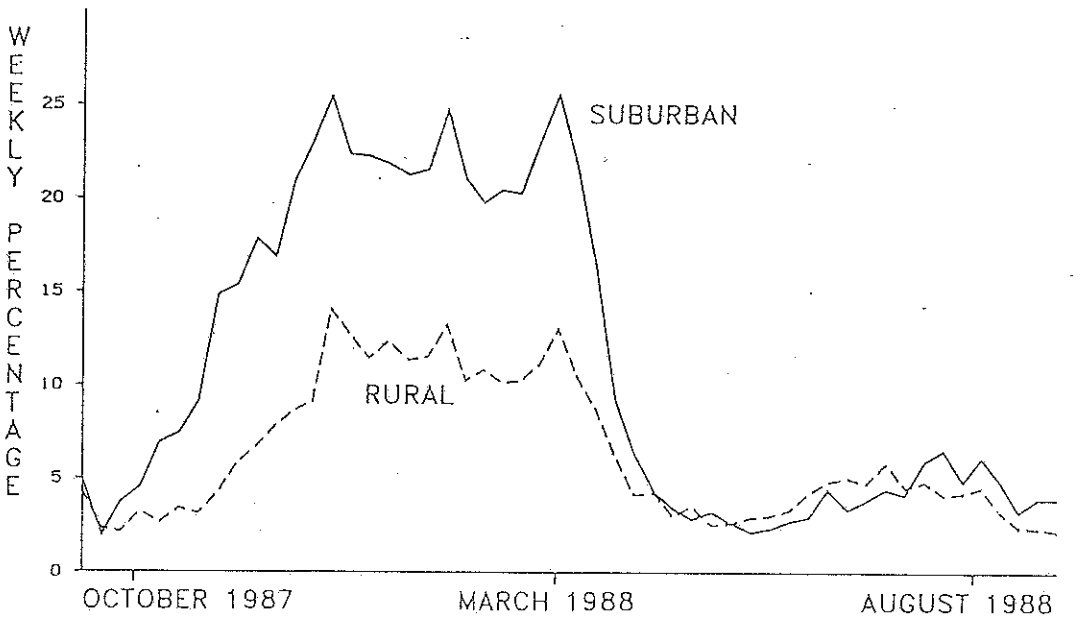
*	less than 10
**	11 - 20
***	21 - 30
****	31 - 40

The greatest weekly percentage of gardens used by Linnets in the summer

The numbers show the increase in the percentage of gardens with Linnets between the winter and summer seasons.

B. BLACK-HEADED GULL

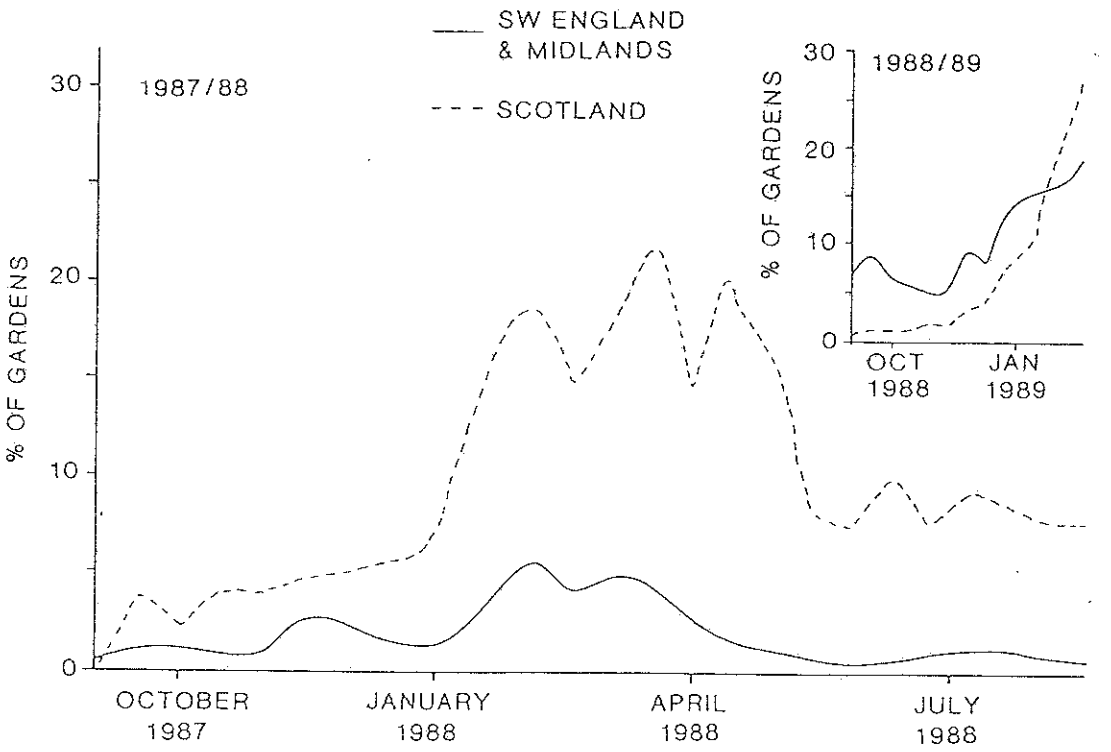
Black-headed Gulls are known to enter gardens in built-up areas during spells of cold weather, when frozen ground makes it impossible for them to reach earthworms in the soil. Despite the mild winters of the survey there was still an influx into suburban gardens. This was especially marked in Eastern England where European migrants are known to gather (Mackinnon & Coulson 1987).



Percentage of gardens used by Black-headed Gulls.

C. SISKIN

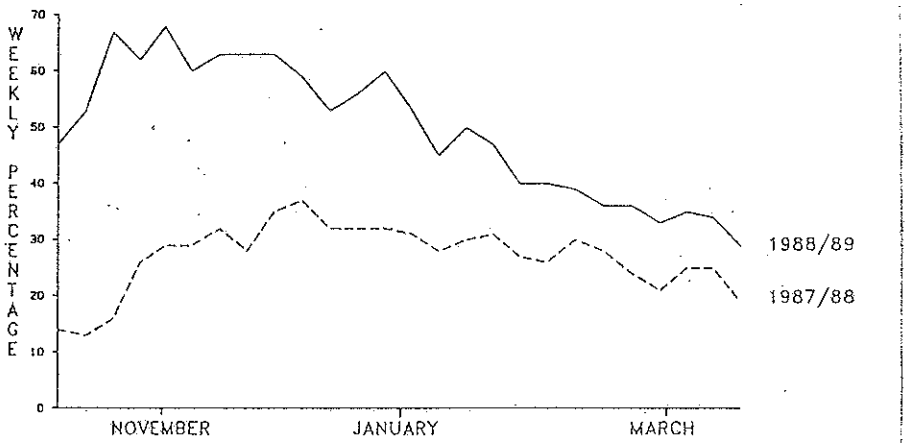
During the winter of the second year of the survey (1988/89) there was a Siskin 'invasion' of the UK. These invasions occur when the crop of cone seeds in the coniferous forests where the birds breed is inadequate. The inset graph is for the 'invasion' year, and shows an influx of Siskins into gardens in SW England, the Midlands, and Scotland. The larger graph shows the pattern for the previous winter, when Siskins did not 'invade' but Scottish gardens were patronised at the end of the winter as the natural seed stocks ran down. Siskins have recently increased their numbers in Scotland as they have rapidly colonised plantations of Sitka Spruce and pine (Thom 1986) and they move into gardens to feed because of the proximity to their breeding grounds.



The weekly percentage of gardens in Scotland, the Midlands and SW England which were used by Siskins. Artwork Liz Murray.

D. COAL TIT

The survey results have shown that the tit species, which primarily feed on insects during the breeding season, start to move into gardens as soon as their insect food supply begins to run out. The tits then switch their diet to seeds. The 1988/89 season was a poor one for beech mast, which is an important source of food for Coal Tits. Beech mast is also thought to be an indicator of the crops of other plants. The graph indicates the greater use of gardens by Coal Tits in the 1988/89 winter than in the first winter of the survey. Provision of supplementary food in gardens is thought to enhance the chance of overwinter survival of the feeding birds.



The percentage of all gardens visited by Coal Tits in the first two autumn/winter periods of the survey.

E. BREEDING BIRDS, SUMMER 1988

A high proportion of gardens are provide nest sites for the top three species in these lists, namely Blackbirds, House Sparrows, and Blue Tits. Clearly most of these species favour rural gardens as nest sites. Four migrants are in the lists - Spotted Flycatcher, Swallow, House Martin, and Swift. The only one of these that is in the top fifteen species present during summer 1988 is House Martin (23% of all gardens): several non-migrants made more general use of the gardens but used them less for breeding.

Urban	%	*Suburban*	%	*Rural*	%
Blackbird	25	Blackbird	26	Blackbird	39
House Sparrow	18	Blue Tit	17	Blue Tit	28
Blue Tit	15	House Sparrow	17	House Sparrow	26
Dunnock	10	Robin	9	Robin	22
Starling	9	Starling	9	Wren	16
Robin	9	Dunnock	7	Song Thrush	15
Song Thrush	7	Song Thrush	6	Starling	13
Greenfinch	4	Wren	5	Dunnock	13
Collared Dove	4	Great Tit	4	Great Tit	12
Great Tit	3	House Martin	4	Woodpigeon	11
Woodpigeon	3	Greenfinch	3	Chaffinch	10
Chaffinch	3	Collared Dove	3	House Martin	10
Swift	3	Chaffinch	2	Swallow	9
Wren	2	Magpie	2	Greenfinch	9
Mistle Thrush	2	Swift	1	Spotted Flycatcher	8
House Martin	2				

The top fifteen breeding species in the summer 1988 season in urban, suburban, and rural gardens. The figures are the percentage of gardens used.

5:3 SUBSET OF DATA

Work is proceeding on a subset of the data - that is, those gardens that have submitted data through a whole year. The identification of individual gardens (each one has its own number) allows a more detailed statistical analysis of the information. Scientific publication is the aim of this analysis.

6. PUBLICITY ACHIEVEMENTS

(i) Some 10,000 households, press outlets, and educational establishments have received the survey materials, including a colour poster, car sticker, information sheet, survey cards, introductory letter, and newsletter.

(ii) A continued programme of press releases, contacts with specific targets, and the survey newsletters, have generated media coverage. The media achievements are summarised in the table below.

Media	Number of outlets
National press	7
Regional press	93
Magazines	65
Newsletters	31
Books	3
Talks, exhibitions, conferences	48
Radio	24
TV	4

7. CONCLUSIONS

7:1 BENEFITS TO SCIENCE AND CONSERVATION

(i) The survey has provided original information on:

* birds breeding in gardens
* the seasonal use of different types of gardens through the year
* regional differences in the use of gardens

The variation in the use of gardens in the UK is influenced by the distribution of species, the regional variation in habitats and land management, and possibly bird behaviour. We know that changing land use affects the survival and feeding habits of garden birds (Thompson 1988) and the survey has given a measure of the current use of gardens.

(ii) From the results we have gained information on those species which merit a more detailed research programme. One example is the Linnet, which is known to be declining as a breeding bird and was concentrated in gardens in Eastern England, during the summer months (see section 5)

(iii) Magpies are popularly believed to be a threat to our song bird populations. The survey has measured the extent of spread of this species in the UK in different gardens types. Participants in the survey have also contributed more detailed information on Magpies in a research programme investigating this popular belief.

(iv) The data obtained form the basis of statistical analyses from which scientific publications are planned.

(v) The survey has gathered information on birds which appear to have become increasingly dependent on gardens as other habitats are destroyed or threatened.

(vi) A number of children and schools have taken part in the project. It has provided an excellent introduction to survey work for young people who can progress to other work in conservation ornithology.

(vii) Participation in the survey, feedback of the results, and the associated media coverage holds considerable educational value for many people - a vital aspect of conservation.

7:2 FUTURE PLANNED RESEARCH

(i) Seasonal occurrence and the incidence of breeding; statistical comparison of regions and broad habitat classes.

(ii) Comparison between years - the effects of weather and natural food supply (eg beech mast). The survey ran over three mild winters; comparison of the results will provide confirmation of the pattern of distribution of garden birds.

(iii) Analysis to discover which characteristics of gardens are most attractive to birds, particularly for breeding.

(iv) Comparison of the regional distribution of some species with that shown by the BTO's ringing scheme and the Atlas of Wintering Birds.

(v) Examination of the results for rarer species, for which information is not automatically read into the computer.

7:3 CONSERVATION DEVELOPMENTS

(i) The results of the survey and planned research could be used to provide advice. The topic is popular: many outlets will take popular articles, and a book is planned, on how gardens can be managed for birds.

7:4 SUMMARY

(i) This project has produced original scientific data of value to conservation on the use of gardens by birds.

(ii) The study of garden birds, both easily accessible and familiar, presented many educational opportunities both through participation and the media coverage achieved.

(iii) The BTO has further planned research and conservation developments for the data gathered during the survey.

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