The Rookeries of Somerset

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I. Introductory

The investigation described in the present paper was undertaken with a dual object, primarily as part of a general scheme of intensive study of the ornithology of Somerset to which the writer has devoted a good deal of his leisure in recent years, but also because it was felt that a Somerset Rook census would provide valuable material for comparison with the results of the similar survey recently carried out in the Oxford district, not to mention sundry others in areas in which he is less immediately interested.

As a colonial bird, whose nests are easily located and counted, and at the same time one whose economic status is of considerable interest to the community, the Rook is obviously a peculiarly suitable subject for a study in bird ecology concentrating on the determination of numbers and an attempt to correlate their local variations with varying environmental factors. It is, furthermore, evident that even with sufficient data available on the food of the Rook, it is hopeless to try and assess its effect on agriculture without accurate information as to its numbers. An enquiry such as the present has thus not only a scientific, but a practical value. These are the considerations which have led various investigators before the present writer to take up the subject of Rook population, and the points mentioned are so generally recognized that it is unnecessary to do more than remind the reader of them and to add that the county of Somerset, by reason of the diversity of country and of geological formations included within its boundaries, offers a particularly interesting, though not perhaps an ideally easy field for such a study.

II. Organization and Methods

As the investigation covered one of the largest areas that have been regularly surveyed for Rooks and at the same time constituted a fairly ambitious experiment in co-operative census work, some account of the organization of the scheme and the experience gained may not be without value to future workers.

The country was divided up on the basis of the 2-inch squares

of the 1-inch Ordnance Survey map and as much as possible was covered by volunteers amongst the members of the Ornithological Section of our society. It being obvious, however, that the available helpers amongst local ornithologists could only cover a comparatively small portion of the county, the suggestion was made to the writer at an early stage of the planning of the enquiry that the Boy Scout organization might with advantage be invited to assist with the remainder. The idea was enthusiastically taken up by Mr. Arthur Pryor, County Secretary to the Somerset Boy Scouts, who immediately recognized that such an investigation was a most suitable one for the Boy Scouts to assist in, since it was a piece of practical nature study requiring no expert knowledge, but only straightforward observation, carried out methodically, and a little elementary knowledge of the common trees. Mr. Pryor took upon himself the whole of the laborious task of making the requisite arrangements with the various district organizations for the carrying out of the census, and the fact that local inertia 'let him down' in one or two instances in no way detracts from the writer's deep indebtedness to him for his invaluable assistance, without which it would have been quite impossible to have covered the whole county.

After some preliminary work in 1931 the main census was carried out in 1933. Printed schedules were distributed to all helpers, together with copies of the requisite portions of the 1-inch map and a printed circular giving explicit directions. Thanks to Mr. Pryor the greater part of the county not undertaken by local ornithologists was undertaken by the Scouts, leaving an area not too large for the writer to deal with himself. The result of the 1933 census, so far as the Scout work was concerned, was to confirm the view that such work can well be entrusted to older boys in the Scout movement, provided that one essential condition is fulfilled, namely that the head or at least some senior member of each local organization should take an active interest in the work and exercise such supervision as is necessary to see that it is done intelligently and systematically and to ensure co-ordination. Where this condition was fulfilled or where, as in more than one instance, a senior member did most of the work himself the results were

generally admirable, but it must be admitted that the expectation that the requisite supervision could be counted on in all cases was falsified in one or two instances, where, owing to casualness at local headquarters, a somewhat serious breakdown was only narrowly avoided. Fortunately some check was kept on the progress of the work and the few ' black spots ' were detected in time to save the situation. In the main the areas involved were cleared up in the late spring by the writer, with some timely assistance from Mr. W. B. Alexander, but in a few squares counts had to be postponed till the early winter as soon as possible after the leaves were off, a course which, while not ideal, is not believed materially to have affected the figures (*see* p. 155). Some minor gaps and weak spots which became evident later, together with the fact that in one or two otherwise satisfactory districts the local resources proved unequal to completing the whole area undertaken before the leaves came on, did, however, lead to a modification of the original plan of completing the whole census in a single year and to the filling in of certain substantial areas in 1934. But there is no reason to suppose that this change of plan materially affects the results, since where the areas concerned are (as here) considerable, it is unlikely that the totals in two successive normal years would be markedly different, and purely local increases and decreases would tend to cancel out.

It only remains to add that owing to limitations of time and the large area to be covered completely isolated nests remote from any regular rookery have generally been ignored. Experience shows that in the great majority of cases such single nests belong to Crows. Isolated Rooks' nests are rare and generally speaking have little permanency. They can safely be neglected for census purposes, being much too few to affect the numbers significantly.

III. On Standards of Accuracy

The writer is not so sanguine as to imagine that in such an investigation, carried out by so many observers of varying experience and degrees of enthusiasm, errors or omissions have been entirely avoided. Nevertheless he is confident that any which there may be will prove to be comparatively unim-

portant and that in general the standard of accuracy will not compare unfavourably with that of other comparable investigations. In fact, no pains have been spared to obtain accuracy. It was generally an easy matter to judge from the schedules whether an area had been well done or not, and in cases where there seemed any doubt steps were taken to check the results and if necessary to repeat the census as part of the 1934 work.

It is obvious, however, that although a carefully done census can and should attain a high degree of accuracy and one which is entirely adequate for all practical purposes, *absolute* exactness is not attainable—or in fact necessary—and it is a matter of interest to consider what are the normal and more or less inevitable sources of error and what others there are that can be avoided.

To begin with, owing to the much larger numbers, it is quite clearly impossible to determine the occupation of each nest individually by observation, as was done in the case of the Heron,[1] and it is necessary to assume that all nests extant in the breeding season are occupied. There can be little doubt that broadly speaking this assumption is a valid one. E. M. and B. D. Nicholson in their account of the first Oxford census (16) have pointed out that there is good reason for assuming that under average conditions the combination of winter gales and pillaging for sticks in the early part of the breeding season does result in the destruction of most or all unoccupied nests. But whether any allowance at all ought to be made for unoccupied nests in April counts or whether, as again the Nicholsons have remarked, the results would be materially different after an exceptionally quiet winter, as opposed to one with a high or average amount of wind, is not really known, and intensive observations at a few rookeries to settle these points would be definitely valuable. It seems safe, however, to regard cases where there is any big discrepancy between the number of nests and the number of breeding birds as due to abnormal conditions. Two such cases occurred in the present enquiry. Thus at the Wiseburrow rookery (No. 546) the number of birds appeared definitely too low for the number

[1] *Proc. Som. Archaeol. & Nat. Hist. Soc.*, vol. lxxv (1929), 61–90 ; and vol. lxxvi (1930), 63–84.

of nests, so that the recorder made a compensatory deduction from his count. He thought it possible that the birds were deserting the colony. A comparable state of affairs seems to have existed at Quarme Combe (No. 171) on Exmoor, where a number of the nests appeared to be old and unoccupied.

A source of error which can be to a great extent avoided is that entailed by counting too early. Counts made in mid-March and mid-April may be very different, and on this account helpers in the present enquiry were asked not to take the counts until April whenever possible and in no circumstances to do so before the last week of March. In a very few rookeries these instructions were inadvertently not observed and counts were taken earlier in March than the last week, but they are in any case too few to affect the result.

With regard to the actual counts the Nicholsons expressed the opinion that the Oxford census was accurate within 2 per cent. In reference to the number of nests extant at the date of counting this may possibly be so, but as between the census figure and the number of pairs actually breeding in a given year the error is necessarily greater. It has been pointed out above that the counts in Somerset, as was also the case at Oxford, were taken in April and that this is late enough to give a good approximation to the actual breeding population. But a few nests go on being added far into April and will be missed by counts early in the month, while late counts, though they will include these late nests, may still be slightly out, owing to the counting of nests which for one reason or another have come to grief or been deserted.[1] Some small margin of error is thus practically inevitable in this connexion.

Even in determining the number of nests extant on a given day a certain small error is involved (unless the observer is prepared to climb to each one) by the huge masses of sticks which are not uncommon. To estimate from below the number of nests represented by these bulky structures is necessarily to some extent guesswork, it being impossible to lay down any general rule about them. More often than not

[1] It is also asserted by Roebuck (17), who, however, does not quote any definite observations in support of his statement, that late counts may be complicated by ' partial nests ' built by young birds.

they seem to consist of fewer nests than might be supposed, and frequently there is really only one or perhaps two, built up on the wrecks of others (*cf.* Yeates (24), p. 23), but Roebuck (17) mentions one such mass which comprised eight nests.

The several complicating factors above mentioned will no doubt tend, up to a point, to cancel out in the results, but their net effect in the aggregate will be to produce an error, which in the writer's opinion cannot well be less than 5 or 6 per cent. There is, however, no reason to suppose that it will be of an order to affect the practical validity of census methods or results, and every reason for expecting it to be well within the limits of natural fluctuations. In other words the error in the figures obtained in a careful census in a particular year is likely to be decidedly less than the difference in the real figures for consecutive years depending on natural causes.

Finally in connexion with this particular census it may be recalled (*cf.* p. 152) that in a few cases gaps were filled by counting nests in the early winter as soon as possible after the leaves were off. This is not a method which one would take for choice, owing to the possibility of some nests having been destroyed by autumn winds. But there was actually little evidence of this, and it must be remembered on the other hand that any such small reduction would tend to be compensated by the inclusion of late nests which would not have figured in counts taken in the earlier part of the ' official ' census period. It is, in fact, unlikely that the error involved in these few belated counts, as compared with the real breeding total, is significantly greater than the difference discussed above between counts taken towards the beginning and towards the end of the ' proper ' census time.

IV. On the Definition of a Rookery

No one undertaking a Rook census can proceed very far without coming up against the problem of how to definine a rookery, and it must be admitted that, at least in the present state of knowledge, any definition adopted is bound to be largely arbitrary. The attempt to define a rookery presents in many ways an ecological parallel to the attempt to define a species in systematics. Everyone knows in a broad way what

is meant by it, but it is impossible to define in a precise manner, which will meet every difficult case. Where, as in a large proportion of instances, we are dealing with circumscribed and sharply defined units no difficulty arises. But in a certain proportion of cases we meet with detached groups placed at varying, but comparatively short, distances apart, and the question then arises how the line is to be drawn between one rookery and another. In point of fact, if it could be shown that two more or less adjacent groups had distinct feeding grounds this might serve as a criterion, as the Nicholsons have suggested. But the evidence is against the existence of clearly defined feeding territories peculiar to each rookery, and although more observation on the subject is needed, it appears that Rooks from relatively widely separated communities, which on any criterion would be reckoned distinct rookeries, may mingle amicably on the same feeding ground. It may reasonably be held that, if only the requisite information could be got by marking experiments or otherwise, a valuable criterion could be established in terms of freedom of interchange or the lack of it between different groups. In other words, that if particular birds in different years may breed indifferently in any one of two or more sites all these should be treated as sub-groups of a single rookery, while conversely groups between which such an interchange does not normally occur should be reckoned distinct communities. But there can be very little doubt that even in compact rookeries or very closely adjacent groups the same birds tend as far as possible to nest from year to year in more or less the same places, while we do not even know for certain (though it seems unlikely) that emigrants from a given community may not sometimes join up with comparatively distant ones, which could hardly be treated as part of the same rookery without reducing the term to an absurdity.

Without indulging in further speculations it may be said that although a more intimate knowledge of such details of Rook biology as those mentioned is greatly to be desired and would probably make possible a more natural and satisfactory definition than can be given to-day, it is unlikely that any rigid criterion could ever be laid down, which would make it possible in all cases to differentiate in a rule-of-thumb manner

between distinct rookeries and sub-groups of one, simply because there is little reason to suppose that in fact any sharp line of demarcation exists.

The concept of a rookery as a more or less distinct unit must not be pressed to the extent of implying a false analogy with human communities, like a town or a parish, whose limits are defined by sharp boundaries intentionally determined. In trying to formulate definitions of animal communities it must be remembered that we are not seeking to find comparable boundaries, which exist if only we knew enough to enable us to find them, but are simply inventing practical terms to correspond to groupings which seem to have some reality in nature, but in fact are often not sharply defined at all. These considerations may seem self-evident, but can be overlooked in striving after precise definitions.

However this may be, it is necessary in practice, for purposes of recording and for comparisons in different years, to have some working definition of a rookery, which can at least be applied consistently. For present purposes a moderately comprehensive conception of a rookery has been adopted, which on the whole accords pretty well with the writer's general impressions in the field as to what are and what are not likely to be distinct communities. In dealing with such a mobile creature as a Rook it seems safe to regard groups of nests within a quarter-of-a-mile of one another as part of one rookery. Groups half-a-mile apart, on the other hand, usually give the impression of being independent: the 'difficult' cases mostly concern groups at intermediate distances. The Gordian Knot has been cut by splitting the difference: groups of 3 furlongs or more apart are regarded as separate rookeries, those closer together are treated as sub-groups of one. So far as possible this principle has been applied consistently, though obviously there must always be borderline cases, and it must be remembered that the marks on the maps, on which decisions have to be based, are only approximately accurate.

It has been held that historical considerations—*e.g.* the known derivation of one group from another—should carry weight in deciding the status of particular communities, but this view has not been adopted here, for two reasons. First

of all, information of this sort is only available in a very small percentage of cases, but of greater importance is the fact that even when one colony *is* derived from another a point must be reached somewhere where the offshoot will become isolated from the parent colony and acquire an independent status. The fact (where known) of the derivation of one colony from another has not, therefore, been held to override the spatial criterion laid down above.

Two cases of interest may be quoted in this connexion. In square 120, H 12 of the Ordnance map there were originally two quite distinct rookeries, one in the grounds of Pitney House and one S.E. of Low Ham Church, about three-quarters-of-a-mile apart. About two years prior to 1931 the trees at the former were cut down and the birds dispersed. The groups at Hext Hill and in the fields half-a-mile S.W. of Pitney Church are stated definitely to have been derived from Pitney House, while that on the east side of Pitney had evidently a similar history, having consisted of only 2 nests in 1929 and having increased to 14 in 1931 and 23 in 1933. The birds from the group S.W. of the church were deserting the site in 1933, when the number of nests was reduced to two, and the increase at the site on the east of the village seems to justify the inference that they had migrated there. Such interchanges seem to warrant a fairly sweeping interpretation of 'a rookery'. Consistently with the criterion adopted in this paper the four groups have been treated as three rookeries, but clearly a good case could be made out for treating them as one. Yet if this were done it might have seemed logical, if the history of the groups were not known, to have included the Low Ham site also, which is appreciably nearer to Hext Hill than this is to the other sites or than the latter are to one another. The facts which happen to be available in this instance show, however, that appearances are misleading. The Low Ham rookery has a long independent history and only looks as though it belongs to the Pitney community because groups belonging to the latter have dispersed towards Low Ham. It might of course be arguable that when rookeries formerly distinct are brought closer together by groups from one or other of them colonizing intermediate ground the originally separate communities may

tend to fuse. But in the absence of any definite evidence to this effect it seems clear that the Ham Hill rookery should be treated as separate, notwithstanding the spread of the Pitney groups towards it, and fortunately its distance from the Hext Hill site is just sufficient to allow this course to be taken without incurring a charge of inconsistency !

This case is instructive because it emphasizes both sides of the picture. A consideration of the history of the Pitney community suggests on the one hand that some of the groups treated here as two or more separate rookeries might well be regarded as one. On the other hand it serves to warn us that seeming continuity or an approach to it may be the result of the building of nests in a gap between originally quite distinct colonies, which, for anything we know, may still preserve their individuality. So we are led back to the conclusion that in the absence of historical data, which are often not obtainable, and of a knowledge of the organization of Rook communities, which no one yet possesses, there is no satisfactory alternative to a reasonable, but frankly arbitrary, grouping based on a spacial criterion.

Another case of groups whose history is known is that of the communities in square 120, H 3. Here the two groups near Ford and that half-a-mile away at Davey's Farm are stated to have had a common origin, all three being the products of the dispersal of a rookery at Okehampton House, three-quarters-of-a-mile from Ford. They might on that account have been treated as sub-groups of a single rookery, but for the reasons already made clear this course has not been followed. Here we seem to have a case of a single community splitting into two, and it would be very interesting to know whether the Ford and Davey's Farm colonies use the same feeding grounds and whether those of either differ from those frequented when the birds bred at the old site.

In open country groups of nests, here more concentrated, there more scattered, but none at any considerable distance from one another, may be distributed over a large area. In the Mark-Blackford region, for example, scattered groups separated by comparatively short gaps cover an area more than two miles long by a mile wide. Another widely scattered

community (No. 627) is found some four miles to the north of Yeovil in the northern half of square 130, A 2, and another is the Lottisham-Southwood rookery (No. 454), in which small groups and odd nests are scattered over a strip of country two miles long. In the first case, before deciding on the criterion discussed above, the writer was in some difficulty as to how to treat these groups. The said criterion at least gets us out of an *impasse*, but is less satisfactory in its application here than in most cases. It leads to treating the groups from the east end of Blackford to the west end of Mark as one rookery (No. 221), with three main concentrations or sub-groups at the two extremities and round Totney Farm in the centre, while excluding by a narrow margin the Westham groups and a few nests around the western outskirts of Mark, which seem to be no more than outliers of the larger community. Judging the case on its own merits the writer would on the whole have preferred to regard this assemblage as constituting either four or five rookeries or only one.

Other ' troublesome ' cases could be quoted, but the examples dealt with sufficiently illustrate the principles and difficulties involved and still further discussion would be unprofitable.

V. The Census Results

In the pages which follow a list of the rookeries of the county, with the census results for each, is given in tabular form. A few words of explanation on sundry points are appended, though for the most part the table explains itself.

For convenience of reference and comparisons in future years the rookeries are recorded in terms of the sheets and squares of the 1-inch Ordnance map (column 1). Also for reference purposes each is assigned an arbitrary number (column 2). In column 3 the actual sites are enumerated. On the basis indicated on p. 157, 669 rookeries are recognized, but as far as possible well-defined sub-groups, a fair proportion of which might on a rather less comprehensive classification be regarded as separate rookeries, have been recorded separately, and this it is believed will facilitate any comparative work which may be done in the future. In all, particulars are separately recorded for 968 sites, with a total of 35,643 nests.

In column 4 an attempt is made at a rough classification of

MAP ILLUSTRATING THE DISTRIBUTION OF ROOKERIES IN SOMERSET, 1933-4.—I.

Scale 2 Miles to an Inch

The Grid Lines are drawn, by permission, to correspond to those on the One-Inch Ordnance Survey sheets, Popular Edition.

the types of site by means of symbols, to which the following is a key :

A. Trees in hedgerows, windbreaks or avenues or on open parkland, fields or lawns.
B. Small, compact clumps of trees.
C. Woods, copses, spinnies or shrubberies.
D. Isolated trees or groups of trees amongst buildings in towns (not in parks or gardens).

In this connexion reference should be made to p. 225.

In column 5 the census figures for each rookery are given on the right-hand side of the column, while in cases where sub-groups are recognized the distribution of nests between them is indicated on the left. An asterisk * indicates a count taken in the second year's work (1934) and the sign † the few counts taken in early winter (*see* p. 155). The results of the preliminary work done in several areas in 1931 are not published, as a number of the counts then made were only rough or were taken too early to be properly comparable with the 1933 figures. It is worth noting that at sites for which accurate and comparable figures are available the 1931 total was 8,707 as against 9,632 in 1933.

The remaining columns show the numbers of nests in the various species of trees. In a few rookeries the species of trees are recorded without the numbers in each being noted. In these cases, where figures cannot be given, the species are indicated by the sign + in the appropriate columns.

The distribution of the rookeries is shown in detail in the three folding maps on a scale of $\frac{1}{2}$ inch to 1 mile. The maps are subdivided by a grid corresponding to the squares of the 1-inch Ordnance map, so that any rookery in the table can be readily located. The situation and extent of the main groups and sub-groups are indicated approximately by the crosses, and each group or combination of groups reckoned here as one rookery is indicated by a red ring or other outline surrounding the corresponding mark or marks. It should be understood that a cross is in no way intended to stand (even roughly) for any particular number of nests or trees, nor must the crosses be assumed to be necessarily of equivalent value in different cases, some of the observers having marked the distribution of groups in more detail than others.

TABLE I

LIST OF SOMERSET ROOKERIES, 1933–4, WITH THE PRINCIPAL CENSUS RESULTS

Sheet and square	No.	Situation	Type of Site	No. of Nests 1933 (or 34)	Elm	Oak	Beech	S. Pine	Ash	Sycamore	Horse Chestnut	Lime	Other Trees
110													
B 13	1	Adelaide Terrace, Portishead	A	**17**						14		3	
,,	2	Sheepway Lane, near Portbury	A	**16**	16								
B 14	3	Near Sheephouse Farm	A	**10**	10								
C 13	4	Caswell Farm, Portbury	A	**11**	9	2							
,,	5	N. side of Clapton-in-Gordano	A	**5**	2	2							1[2]
D 11	6	Paddock of Clevedon Hall	A	**11**	11								
,,	7	Rookery Farm, near Tickenham	A	**10**	10								
D 14	8	Backwell House	A	**13**	+		+						
E 9	9	Woodspring Priory	A	**43***	43								
E 10	10	Near Ham Lane Halt	A	**10**	10								
E 11	11	Kingston Seymour		**36**									
,,		N. of Church	A	27	27								
,,		¼ mile S. of Church	A	9	9								
,,	12	Near Lampley Bow, Kingston Seymour	A	**7**	7								
,,	13	North End, near Yatton		**20**									
,,		On Kenn Moor, N.E. of Ham Farm	A	16	16								
,,		At North End, S.E. of Ham Farm	A	4	4								
,,	14	S. of Claverham Drove, Kenn Moor	A	**6**	2								4[3]
E 13	15	Brockley Park and Combe		**108**									
,,		In Combe, E. of road	C	16					16				
,,		In Park	C	92	71	16			3		2		
F 9	16	Near Manor Farm, Worle	A	**10***	10								
F 10	17	Near Bourton	A	**18***	18								
,,	18	West Hewish	A	**18**	4					14			
,,	19	Behind Hewish Vicarage	A	**12**									12[4]
F 11	20	Willow Farm, Puxton	A	**7**	7								
F 11–12	21	Yatton	A	**23**	17							6	
F 12	22	Congresbury Vicarage	A	**9**	9								
F 13	23	Barley Wood House, Wrington	C	**89**			89						

G 9	24	West End Farm, Locking	A		**7**	7							
,,	25	Locking			**43**								
,,		Village	A	18		18							
,,		S.E. of Church	A	25		25							
G 10	26	N. of East Rolstone, E. of road to Puxton	A		**3**	3							
,,	27	Rolstone Farm	A		**9**	9							
,,	28	Ivy House Farm, Woolvershill	A		**7**	7							
,,	29	Woolvershill, nr. Park Farm (opposite side of road)	A		**16**	16							
G 10–H 10	30	Banwell			**43**								
G 10		The Elms	A	41		41							
H 10		Outliers behind the Grange Guest House	A	2		2							
G 11	31	Nye			**22***								
,,		E. of road	A	14		14							
,,		W. of road, by Rookery Farm	A	8			8						
G 12	32	Churchill Court and Church	A		**16***		3	3	3	1			6[4]
,,	33	Langford House			**47***								
,,		S.W. corner of grounds by road to Congresbury	A	8		8							
,,		Adjacent to main road, W. of entrance	A	13		9		4					
,,		E. side of grounds	A	26		26							
G 13	34	[Hylsbroke[1]			**18**	18]							
,,	35	Aldwick Wood	C		**23***	10	1			12			
H 8	36	Uphill Manor	C		**94**	82		12					
,,	37	Feckham Wood, Bleadon	C		**59**	59							
H 9	38	Hutton	A		**13**	13							
H 10	39	Between Christon and Yarborough	A		**120**	120							
,,	40	S. of Christon Rectory	A		**67**	67							
,,	41	By the Lox Yeo, N. of Loxton	A		**20**	20							
H 12	42	Rowberrow	C		**46***	2		20		5	18		1[5]
H 14	43	Blagdon Rectory	C		**57**	38		1	3		15		
J 7	44	Hern's Farm, Berrow	A		**58**	58							
J 8	45	Tarr and Wick Farms	A		**32**	28			2				2[6]
J 8–9	46	Lympsham	A		**147**	134			12		1		
J 9	47	Near Shiplate Manor Farm	A		**17**	17							
,,	48	¼ mile s.w. of White House Farm	A		**23**	23							
,,	49	North Yeo Farm	A		**43**	43							

1. The nests recorded at this site are not reckoned in the census total, the colony having probably been absorbed in 1934–5 by No. 33, which is known to have undergone a marked increase about that time. In 1935 no nests could be seen at Hylsbroke.

2. Hawthorn. 3. Willow. 4. Black Poplar. 5. Larch. 6. Ilex.

TABLE I—*continued.*

Sheet and square	No.	Situation	Type of Site	No. of Nests 1933 (or 34)	Elm	Oak	Beech	S. Pine	Ash	Sycamore	Horse Chestnut	Lime	Other Trees
110													
J 9	50	Edingworth	C		**63**	63							
J 10 & 120 A 10	51	Biddisham and Tarnock			**43**†								
,,		Scattered groups on both sides of road through Biddisham	A	35		35							
120 A 10		Tarnock	A	8		8							
J 10	52	The Downs, Badgworth	A		**44**†	44							
J 11	53	Cross	A		**15**†	15							
J 12	54	Near Axbridge Station	A		**3**	3							
,,	55	Barrows Wood Farm, Axbridge	C		**34**	33						1	
,,	56	The Hall, Cheddar	C		**34**	34							
111													
D 2	57	Ashton Park			**55***								
,,		Ashton Court	A	11		11							
,,		By main road at Bower Ashton	A	44		44							
D 3	58	Knowle			**7**								
,,		Airport Road	A	7		7							
,,		[N. of last, outside county boundary	A	5		5]							
D 4	59	Brislington			**38**								
,,		By lodge of Brislington House	A	20		20							
,,		Copse in fields S.S.E. of last	C	18		18							
,,	60	Stockwood Covert	C		**3**	3							
D 5	61	Bristol Road, Keynsham	A		**22**	22							
D 7	62	Langridge			**23**								
,,		Wood west of Rectory	C	4		1		3					
,,		Copse rather over ¼ mile N. of last	C	19					19				
E 1	63	Barrow Hill	A		**12***	12							
E 2	64	s. of the Grange, Bishopsworth	A		**7***	7							
,,	65	Near East Dundry	A		**18***	18							

E 4	66	Whitchurch			**16**									
,,		s.w. of Whitchurch Halt	A	10		10								
,,		Norton Lane, Whitchurch	A	6		6								
,,	67	Copse off Highwall Lane, nr. Queen Charlton ..	C		**42**	42								
E 5	68	Chewton Keynsham			**266**									
,,		Chewton Place	C	95		10		17	45	1	8		14	
,,		Gifford's Copse	C	171			170			1				
E 5–6	69	Between Keynsham and Saltford			**115**									
E 5		Wood N.W. of Keynsham Manor House ..	C	11		3		2	1	3			2	
,,		Outlier by Courtenay Road	A	3		3								
,,		Wood opposite Longreach House	C	70		46	13	11						
E 6		Round Stidham Farm and G.W.R.	A	24		22		2						
,,		Wickhouse Farm	B	7		6		1						
,,	70	Saltford Golf Course	A		**11**	6				5				
,,	71	Kelston Park	A		**75**	75								
E 7	72	Weston Manor House	A		**58**	20	17		4		5			12[1]
E 8	73	Lansdown Wood and Westwood House	C		**88***	42		19	1	4	22			
,,	74	Near Twinfield Farm, Charlcombe	A		**5***	5								
,,	75	Gloucester Road, Bath	C		**14***	14								
,,	76	Grosvenor Place, Bath	D		**19***			9			2	8		
,,	77	Lansdown Crescent, Bath	D		**14***	14								
E 9	78	Bathampton	B		**33***	1						32		
,,	79	Bathford			**56***									
,,		Corner to S. of bridge	A	2		2								
,,		Near Church	C	17				17						
,,		Fields to E. of last and near houses adjacent	A	30		30								
,,		N. of last, garden adjoining main road ..	A	7				7						
E 9–10	80	Shockerwick House			**32***									
,,		Southern borders of park	A	26		21				5				
E 10		S.W. of house	A	6		6								
F 1	81	Butcombe Court	A		**73***						30		43	
,,	82	Winford Manor	C		**44***			18	5			16		5[2]
F 2	83	Chew Magna	C		**38***	32		5	1					
F 3	84	North Wick	A		**4***	4								
E 3–F 3	85	Maesknoll-Norton Hawkfield			**84***									
E 3		W. of Maesknoll	A	53		52	1							
F 3		N. side of farm N. of road at Norton Hawkfield	A	6		6								

1. Plane. 2. Spruce.

TABLE I—*continued.*

Sheet and square	No.	Situation	Type of Site	No. of Nests 1933 (or 34)	Elm	Oak	Beech	S. Pine	Ash	Sycamore	Horse Chestnut	Lime	Other Trees
111													
F 3		By stream s. of same road	A	25	25								
E 3–F 3	86	Near Norton Malreward		**20***									
F 3		Copse on Whitchurch road s. of 'Hillside' ..	C	16		12			4				
E 3		Outliers in fields to N.W.	A	4		4							
F 3	87	Stanton Drew	AC	**11***	11								
F 3–4	88	Near Upper Stanton Drew		**42***									
F 3		N.E. side of hamlet	A	27	27								
F 4		Fields between ¼ and ½ mile S.E. of last ..	A	15	15								
,,	89	s. of Hurley Hill	A	**13**	13								
,,	90	Belluton	A	**18***	18								
F 5	91	Marksbury	AB	**104**	75		29						
F 6	92	Corston		**120**									
,,		Golf Links	C	33	14		19						
,,		Church Farm	A	10	10								
,,		Lower Farm	A	14	14								
,,		Stone Warth field	A	15	10		5						
,,		Hockey Field	A	30	17		13						
,,		Corston Lodge fields	A	18	9		9						
,,	93	Newton Park Farm	C	**7**			7						
F 7	94	Twerton Wood	C	**152**	76	16	45		13	2			
F 8	95	Bath		**29***									
,,		Victoria Park	A	11	11								
,,		The Circus	D	3									3[1]
,,		Henrietta Street	D	3	3								
F 8		Recreation Ground	A	12	10								2[1]
F 9	96	Claverton	C	**35**						15	20		
,,	97	Warleigh Woods	C	**82***			77		5				
G 1	98	Nempnett Farm		**43***									
,,		w. side of farm	A	39	2				37				
,,		¼ mile N.W. of last	A	4					4				

O 1	99	Nempnett Thrubwell	A		**51***	43			8					
G 2	100	¼ mile N. of Chew Stoke village	A		**82***	78	1	2		1				
,,	101	Chew Stoke Hill	A		**4***	4								
,,	102	By R. Chew ½ mile E. of Chew Stoke	A		**33***	33								
G 3	103	Sutton Court			**98***									
,,		By northern boundaries of park	A	85		85								
,,		Near house	A	13		5			3			5		
G 4	104	Park Farm, Chelwood	A		**14***	14								
G 5	105	Hunstrete House	A		**6***			6						
,,	106	Farmborough	C		**18***			18						
G 7	107	Dunkerton	A		**62**	62								
G 7–8	108	Combe Hay			**317**									
G 7		Combe Hay Manor	A	59				59						
G 8		Underdown Wood	C	258		77		151	30					
,,	109	South Stoke	A		**2**			2						
,,	110	Midford Castle	C		**69**	53		3				13		
G 9	111	Near Monkton Combe			**15***									
,,		N. of Midford Brook, ¼ mile E. of village ..	A	15		15								
,,		[S. of same, in Wilts.	A	11		11]								
H 1	112	W. of Ubley	A		**62***	29	33							
,,	113	Hazel Manor	A		**55***			53		2				
H 2–J 2	114	Harptree Court	CA		**160***	24	2	131			3			
H 3	115	Old Rectory, Cameley	C		**222***		2	100	19	2	98			1[2]
H 3–4	116	Cameley			**6***									
H 3		Field *c.* ¼ mile N.W. of Church	A	3		3								
H 4		Adjacent to Church	A	3						3				
,,	117	Cholwell	C		**136***				1	115	20			
,,	118	Cameley Mill	A		**5***	4	1							
H 5	119	Timsbury Church and Rectory	A		**21***	2		15			2	1	1	
H 6	120	Clandown	A		**41***	33		8						
,,	121	Woodborough House	C		**53***	34		8		8				3[3]
H 7–8	122	Wellow	A		**13***	13								
H 9	123	Hinton House park	CA		**63***		17	3		30			13	
H 9–10	124	Farleigh Hungerford			**42***									
H 9		Clump of trees N.W. of Castle	C	9		3		6						
H 10		Spinney on right bank of R. Frome	C	33		22		1	10					
H 9	125	Farleigh House	C		**37***	1		28		1	4	2		1[3]

1. Plane. 2. Holly. 3. Larch.

TABLE I—*continued.*

Sheet and square	No.	Situation	Type of Site	No. of Nests 1933 (or 34)	Elm	Oak	Beech	S. Pine	Ash	Sycamore	Horse Chestnut	Lime	Other Trees
111													
J 3	126	Near Eastwood Manor Farm	A	**59***	59								
,,	127	Chewton Mendip		**39***									
,,		Chewton Hill	C	35				24		11			
,,		Field to s. of last	A	4					4				
J 4	128	Chewton Field Farm	B	**2***			2						
,,	129	Ston Easton		**322***									
,,		w. side main road near Church	A	6			6						
,,		Ditto, near dower house	A	85	14		43			24	2		2[1]
,,		Groups along w. borders of Ston Easton Park	A	157	21		136						
,,		By drive s.w. of house, Ston Easton Park ..	A	74			74						
,,	130	Cliff Farm, Ston Easton	A	**8***						8			
J 5	131	Baxbury Hill, Midsomer Norton	A	**26***	24				2				
J 5	132	Midsomer Norton		**55***									
,,		Rectory and Churchyard	AC	37	26		2					9	
,,		Near Norton Hill Colliery	A	18	18								
J 6	133	Radstock		**63***									
,,		Rectory	C	11			11						
,,		Spinney on s. side of main road at top of hill, w. of last	C	45	8		14			23			
,,		N. side of same road	A	7	3					3		1	
J 7	134	Shoscombe Bottom	A	**61***	58				3				
,,	135	Hemington	A	**2***	2								
J 8	136	Mount Pleasant, nr. Norton St. Philip	C	**197***		124	27		43				3[2]
J 9	137	Tellisford and Road Manor		**310***									
,,		Near Tellisford Rectory	A	84	67			17					
,,		Road Manor	AC	226	150		2	66	8				
,,	138	¼ mile s.w. of Road	A	**9***	9								
,,	139	N. of Lullington	A	**22***	22								
J 10	140	Road Common		**18***									
,,		By farm	A	12	12								
,,		¼ mile w.s.w. of last	A	6	6								

119														
B 5	141	Oare			**42**									
,,		Copse s. of Manor House	C	41					+					+[3]
,,		Oare House	B	1										1[3]
C 6	142	Withycombe, Oareford	C		**63**						35	28		
C 9	143	Near Holnicote			**193**									
,,		Horridge Wood	C	48			48							
,,		Paddock Wood, Ebbshill	C	145		21	118		5			1		
C 11	144	Minehead			**70**									
,,		Public Gardens, Blenheim Road	A	7		7								
,,		Sea Front	A	13		13								
,,		N. side of King George Road	A	15		15								
,,		E. side of King Edward Road	A	35		35								
,,	145	Minehead-Dunster road nr. Alcombe	A		**22**	22								
,,	146	Dunster	A		**36**	36								
D 5	147	Warren Farm	C		**38**†				38					
D 10	148	Knowle	C		**59**				59					
,,	149	Birch Wood, Bickham	C		**161**		150		7					4[4]
D 11	150	Castle Hill, Dunster	C		**36**	12	24							
D 14	151	Williton			**192**									
,,		Chissedy Copse	C	110		8	3		99					
,,		s. of Church	C	82			24		46				12	
E 4	152	Cornham Plantation	CA		**52**			24	+	+				
E 5	153	Simonsbath	A		**33**			33						
,,	154	Clovenrocks Bridge	C		**31**			+	+	+	+			
,,	155	Honeymead Farm	A		**6**			**6**						
E 7	156	Exford Rectory	A		**21***			12	2		2			5[1]
,,	157	Near Stone, Exford	A		**53***			53						
E 8	158	Dean Plantation, Hawkington	C		**102**			31		68				3[3]
E 9	159	Cutcombe Vicarage	B		**41**	1		14	18		8			
,,	160	Brendonhill Farm	C		**69**			49		5	15			
E 10	161	West Harwood and Steart			**45**									
,,		West Harwood	C	20					20					
,,		Steart	A	25*					25					
E 13	162	Yard Alders	C		**121***		55		66					
E 14	163	Near Nettlecombe			**121**									
,,		Housepiece Copse, Yard	C	84		32	33		17	2				
,,		Woodford	A	37			37							

1. Plane. 2. Poplar. 3. Spruce. 4. Holly.

TABLE I—*continued.*

Sheet and square	No.	Situation	Type of Site	No. of Nests 1833 (or 34	Elm	Oak	Beech	S. Pine	Ash	Sycamore	Horse Chestnut	Lime	Other Trees
119													
,,	164	Blackdown Copse	C	**106**			106						
,,	165	Stanishmoor Copse, Monksilver	C	**61**				61					
F 5	166	Wintershead Farm	A	**53**			53						
,,	167	Horsen Farm	A	**25**			+	+					
,,	168	Sherdon Farm	A	**14**			+	+					
F 6	169	Near Withypool		**87**									
,,		Hillway Wood (Newland Brake)	C	85		+	+	+	+				
,,		Brightworthy Farm	A	2			2						
F 9	170	North Quarme Farm	C	**13**					12				1[2]
,,	171	Quarme Combe	A	**74**			74						
,,	172	Edbrooke	C	**200**		20	6	17	157				
G 8	173	Knaplock	? C	**45**			45						
G 10	174	Kings Brompton Farm	? C	**40**			40						
,,	175	Brompton Regis Vicarage	? A	**14**				14					
G 11	176	Withiel Florey Churchyard	A	**37**				37					
,,	177	Rugg's Farm, Brompton Regis	? A	**4**		4							
,,	178	Venne House	?	**194**		+	+	+					
G 13	179	Clatworthy Rectory	A	**38**			9		10	10		3	6[3]
G 13–14	180	Holcombe Water		**90**									
G 13		Holcombe Water Farm	A	35			35						
G 14		*c.* ¼ mile E. of last	A	55				55					
H 8	181	Slade Bridge	C	**25**				25					
H 9	182	Higher Combe Farm	? C	**75**			75						
,,	183	Hollam-Mount Sydenham	? A	**125**[1]		+		+					
H 12–13	184	Catford and Cross Croft Cottage		**26**									
H 12		Catford	A	15			15						
H 13		Cross Croft Cottage	A	11			7	4					
,,	185	Huish Champflower Rectory	C	**38**			38						
J 9	186	Aller's Wood, Dulverton	C	**95**		63		32					

,,	187	Brushford Churchyard	A		**7**		7							
J 10	188	Bury Wood, Dulverton	C		**50**		50							
J 13	189	Courtdown Plantation	C		**36**		19			17				
,,	190	Wadham's Copse	C		**254**		167	22		9	56			
,,	191	Hurstone Farm	A		**82**	2			80					
J 14	192	Coate Wood, Wiveliscombe	C		**25**		23	2						
120														
A 7	193	Berrow			**13**									
,,		Marsh Farm	A	5		5								
,,		N.E. of Berrow Inn	A	8		8								
A 8	194	The Warren, Berrow	A		**31**	31								
,,	195	Stodden's Road and Manor Hotel, Burnham ..	A		**30**	27			2					14
,,	196	Ham, near Brent Knoll	A		**2**	2								
A 8–9	197	Brent Knoll village	A		**118**	114	4							
A 9	198	N. of East Brent, on Weston road	A		**27**	27								
,,	199	Near Knoll Farm, East Brent	A		**27**	27								
,,	200	Near Battleborough, E. of main road	A		**30**	30								
,,	201	West Vole Farm	A		**24**	24								
A 9–10	202	Vole			**30**									
A 9		East Vole Farm	A	13		13								
A 10		Between Vole and Pillrow Farm	A	17		17								
,,	203	Badgeworth	A		**5**	5								
A 11	204	Badgeworth Court	A		**13**†	13								
,,	205	Alston Sutton	A		**41**†	41								
,,	206	W. of Perrow Farm	A		**21**†	21								
A 11–B 11	207	Chapel Allerton and Ashton			**74**†									
A 11		Between Chapel Allerton and Stoughton-Alston road	A	35		33	2							
,,		Between last and Ashton	A	11		11								
,,		N.E. end of Chapel Allerton	A	2		2								
,,		S.W. end of Chapel Allerton	A	9		9								
B 11		W. of Ashton	A	17		17								
A 12	208	Hythe Bow	A		**5**	5								
,,	209	Clewer	A		**17**	17								

1. This figure is approximate, as owing to an error only a small part of the rookery was counted in 1933 and the revised count which was arranged for was not carried out until too late. The figure adopted is based on the 1931 survey, the numbers being known to have been much the same in the two years.

2. Spruce. 3. Poplar. 4. Plane.

TABLE I—*continued.*

Sheet and square	No.	Situation	Type of Site	No. of Nests 1933 (or 34)	Elm	Oak	Beech	S. Pine	Ash	Sycamore	Horse Chestnut	Lime	Other Trees
120													
A 12	210	Nyland Hill	C	**4**	3	1							
A 13	211	Batcombe Farm, Draycott	B	**49**	49								
A 13–B 13	212	Rodney Stoke		**48**									
A 13		Rodney Stoke Church	A	21	21								
B 13		Stoke Moor	A	27	27								
B 8	213	Love Lane, Burnham	A	**6**	6								
,,	214	Edithmead Railway Bridge	B	**15**	15								
,,	215	E. of Bristol road nr. turning to Edithmead	A	**9**	9								
,,	216	Highbridge Church	A	**16**	16								
,,	217	Highbridge Bacon Factory	A	**21**	21								
B 9	218	Somerset Court	A	**61**	61								
B 10	219	Near Plash House	A	**3**†	3								
,,	220	West Mark		**26**†									
,,		W. side of road to Tarnock, *c.* 200 yds. off main road	A	2	2								
,,		At turning to Yarrow off main road	A	8	8								
,,		N. of Mark Causeway, *c.* ¼ mile W of last	A	16	16								
B 10–11	221	Mark-Blackford		**316**									
B 10		Groups at E. end of Mark	A	93	92			1					
B 10–11		Groups about Totney Farm	A	188	188								
B 11		W. end of Blackford	A	35	35								
B 11–A 12	222	Crickham	A	**20**	20								
B 11	223	Near Blackford Brook	A	**24**	21	3							
B 11–C 11	224	Westham	A	**19**	10								9[1]
B 12	225	Cocklake	A	**66**	66								
,,	226	S. end of Lascot Hill, Wedmore	CA	**61**	49		6			6			
,,	227	Wedmore Moor	A	**12**	12								
,,	228	Theale	A	**12**	12								
B 14	229	Westbury		**100**									
,,		Coombe Hay Farm	A	23									23[2]

,,		Westbury Church	A	12		12		42						
,,		Near Lodge Hill Station and Farm	A	35		35								
,,	230	Near Poplar Farm, Easton	A		2	2								
C 4	231	Honibere	A		85		85							
C 8	232	Huntspill			29									
,,		White Farm	A	27		27								
,,		Crossway Inn	A	2		2								
C 9	233	Bason Bridge	A		22	22								
,,	234	Cote	A		52	52								
,,	235	Cote-Woolavington road, nr. Quaking Bridge ..	A		10	10								
C 10	236	Near Stook House	A		64	64								
,,	237	River Bridge	A		12	12								
C 11	238	Sand Hall	AC		109	101		8						
C 12	239	Mudgeley Hill	A		23	23								
C 13	240	Near Northload Farm, Theale	A		14	14								
,,	241	Hare Acre Hill, Panborough	A		24	24								
,,	242	Bleadney	A		86	86								
D 1	243	White Pit Cover	C		168	80			88					
D 2	244	Knowle Wood, near Quantoxhead	C		20*		20							
D 4	245	Near Water Farm, Stogursey	C		129		129							
D 6	246	Manor House, Otterhampton	A		15	15								
,,	247	Home Covert, Hill Park, Otterhampton ..	C		410	410								
,,	248	Opposite Hill Farm, Otterhampton	B		12	12								
,,	249	Putnell Farm, Combwich	A		8	+				+				
,,	250	Coy Farm, Cannington	A		16	16								
D 7	251	Hill Farm, Stretcholt	A		68	68								
,,	252	Waldron's Farm	A		15	15								
D 7–8	253	Pawlett			122									
D 7		N. of village, between old road and by-pass ..	A	7		7								
,,		S. of Church	A	32		29				2		1		
D 8		E. of main road, near North Farm	A	83		83								
,,	254	W. of railway, near Dunball Brick Works ..	A		13	13								
,,	255	Down End	AB		37	37								
,,	256	Puriton			40									
,,		Grounds of house in village, S.E. of Church ..	C	30		19		4				5	2	
,,		W. of Church	A	10		10								
,,	257	Puriton Hill	C		37	37								

1. Crack Willow. 2. Ilex.

TABLE I—*continued.*

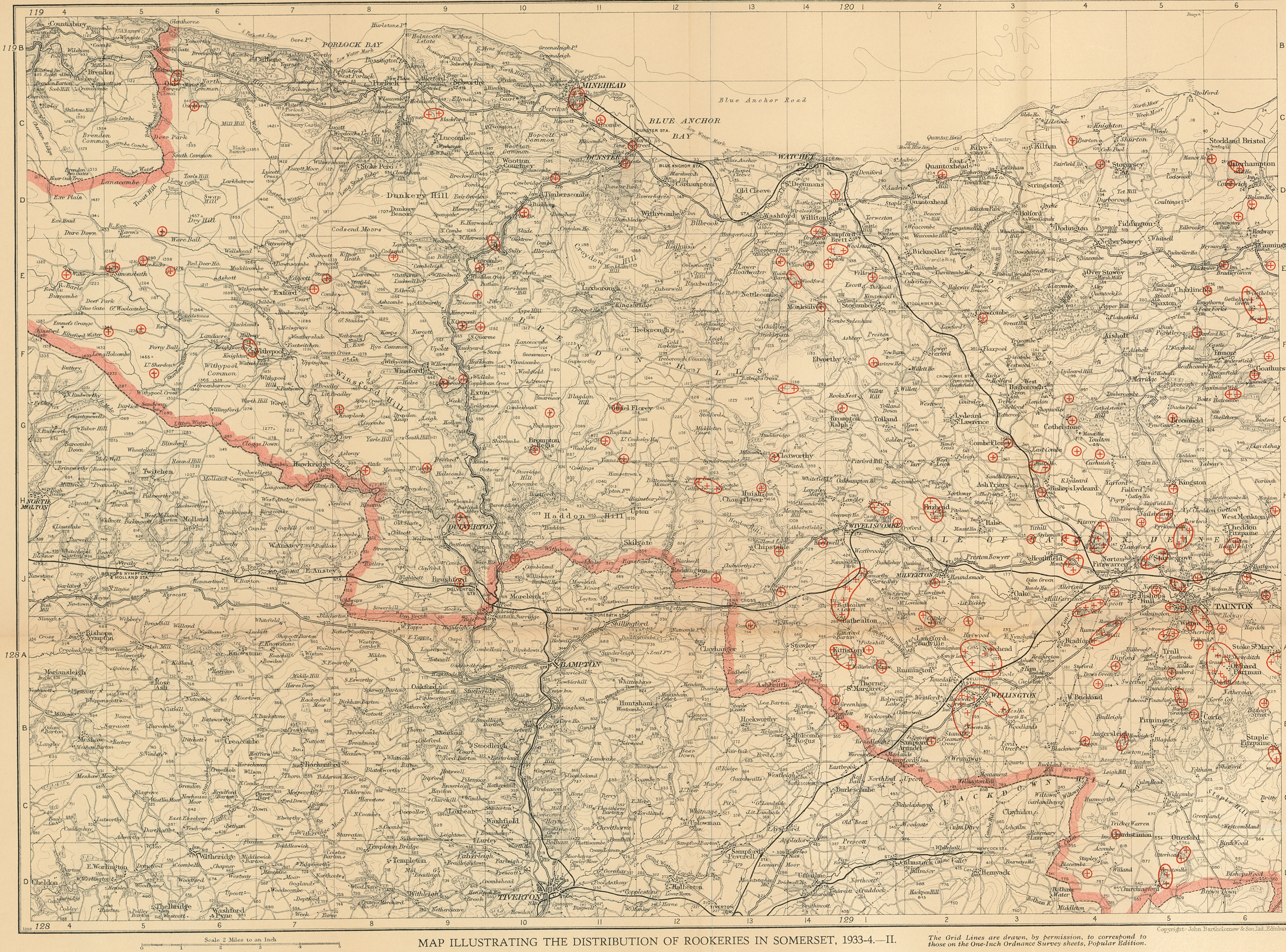
Sheet and square	No.	Situation	Type of Site	No. of Nests 1933 (or 34)	Elm	Oak	Beech	S. Pine	Ash	Sycamore	Horse Chestnut	Lime	Other Trees
120													
D 9	258	Woolavington			**50**								
,,		Priory Farm, Reeds Drove	A	3	3								
,,		Loxwell Farm	A	47	47								
D 10	259	Chilton Moor	A		**7**	7							
,,	260	West House, Chilton Polden	A		**6**	6							
D 12	261	Meare			**48**								
,,		Between village and R. Brue	A	33	33								
,,		Near the Abbot's Fish House	A	15	15								
D 13	262	Lower Godney			**32**								
,,		E. of Manor Farm	A	26	25				1				
,,		N.E. of last, nearer the hamlet	A	6	6								
D 13–14	263	Near Upper Godney			**3**								
D 13		N. side of Garslade Farm	A	1	1								
D 14		N side of lane, ¼ mile E. of last	A	2	2								
D14-121D1	264	Polsham			**73**								
D 14		Orchard on N. side of lane on W. of village	A	12	12								
,,		To S. of same lane	A	52	52								
121 D 1		Yew Tree Farm	A	9	9								
E 1	265	Near Capton			**41**								
,,		Near Aller Farm	C	8	2	5			1				
,,		Between Capton and Sampford Brett	A	33				33					
,,	266	Capton Copse	C		**22**		5	17					
,,	267	Borough Copse, Yellow	C		**125***	124			1				
E 6	268	Blackmoor Farm, Cannington	A		**12**	12							
,,	269	The Grange, Cannington	A		**4**	4							
,,	270	Near Charlinch Church	A		**4**	4							
E 7	271	Perry Wood Farm	A		**14**	14							
,,	272	Wembdon	A		**3**	3							
E 8–9	273	Knowle			**62**								
E 8		N. of Puriton road	C	24	24								

,,		s. of Puriton road	C	5		5								
E 9		s.E. corner of Knowle Park	C	33		33								
E 8	274	Copse *c.* ½ mile N.E. of Sydenham Manor ..	C		3	3								
,,	275	½ mile N.E. of Bridgwater, S.E. of road to Glastonbury	A		3*	3								
E 9	276	Cossington Park	A		37†	36		1						
E 10	277	Ford Copse	C		79	18		21			11	29		
E 11	278	Shapwick			77									
,,		Kent Drove	A	49		49								
,,		Icehouse Cover	C	28		25			3					
,,	279	Shapwick House	AC		35	10		9		5	8	3		
,,	280	Hill Cottage	A		2	2								
E 12	281	Near Ashcott Station	A		2	2								
,,	282	Ashcott Convalescent Home	A		50	50								
E 13–F 13	283	The Grange and Farm Road, Street	A		23	23								
E 14	284	Glastonbury			55									
,,		The Hollies	A	14		14								
,,		Abbey House gardens	A	25		11		3	9					2[1]
,,		Abbot's Kitchen	A	16		16								
,,	285	Actis, Glastonbury	A		23	23								
F 1	286	Hartrow House	CA		42*	13		6	23					
F 3	287	Crowcombe	C		115*			24	90				1	
F 5	288	Barford Wood	C		325*		8	1	313					3[2]
E 6–F 6	289	Gothelney-Durleigh Brook			49									
E 6		Gothelney House	A	11		11								
,,		Gothelney Farm	A	2		2								
,,		¼ mile S.E. of last	A	9		9								
F 6		¼ mile S.W. by S. of last, on Durleigh-Four Forks road	A	5*		5								
,,		By Durleigh Brook ¼ mile N.W. of Old Manor House	A	22*		22								
,,	290	Long Copse, Goathurst	C		129	18	111							
,,	291	Halswell Park entrance	A		5	4					1			
F 7	292	Durleigh			89*									
,,		Spinney ¼ mile S.W. of Durleigh Church ..	C	87		62	12			13				
,,		Copse by N. Petherton road, S. of church ..	C	2			2							
8	293	Huntworth-Compass			75*									

1. ? Hornbeam. 2. Spruce.

TABLE I—*continued.*

Sheet and square	No.	Situation	Type of Site	No. of Nests 1933 (or 34)	Elm	Oak	Beech	S. Pine	Ash	Sycamore	Horse Chestnut	Lime	Other Trees
120													
F 8		Groups to S. of Taunton road	A	67	47	10		10					
,,		Outlier to N. near canal	A	1	1								
,,		Near Huntworth	A	7	7								
F 11	294	Greinton		**60**									
,,		Rectory	A	29	29								
,,		Groups to E. of last	A	29	29								
,,		Outliers W. of Ridgway Lane	A	2	2								
,,	295	Greylakes		**35**									
,,		Main group E. of road	A	23	23								
,,		*c.* ½ mile S.S.W. of last	A	4	4								
,,		W. of road	A	8	8								
F 12	296	Lockhill Hall	B	**4**	4								
,,	297	Walton Rectory	C	**3**	3								
F 13	298	Leigholt and Portway, Street		**12**									
,,		Leigholt	A	7	7								
,,		Portway	A	5	5								
G 1	299	Brompton Ralph Rectory	A	**28**			21	7					
G 3	300	Combe Florey House	C	**124**	3		16	9	45	1		16	34[1]
,,	301	Wood adjacent to Combe Florey Rectory ..	C	**253**		39	195		1	17			1[2]
G 4	302	Tilbury Park	A	**25**				25					
,,	303	Rook Wood, Cothelstone Park	C	**93**		48		43	2				
,,	304	Grove Copse, Cothelstone	C	**182**	14	81			82			2	3[3]
,,	305	Near Toulton	C	**29**		29							
G 5	306	Fyne Court, Broomfield	C	**166**		1	108	3	32	20			2[4]
G 6	307	The Thickets, Halswell Park		**143**									
,,		E. of Patcombe Farm	C	127			127						
,,		W. of Patcombe Farm	C	16			16						
G 8	308	Petherton Park	A	**127**	127								
G 9	309	Hooper's Farm	A	**3**	3								
G 9–10	310	Thorngrove-Middlezoy		**39**									



MAP ILLUSTRATING THE DISTRIBUTION OF ROOKERIES IN SOMERSET, 1933-4.—II.

The Grid Lines are drawn, by permission, to correspond to those on the One-Inch Ordnance Survey sheets, Popular Edition.

G 9		Thorngrove	A	30		30									
G 10		Between Thorngrove and Middlezoy	A	9		9									
,,	311	Owery Farm	A		**95**	95									
,,	312	Shride Farm and Othery			**45**										
,,		Shride Farm	A	24		24									
,,		King's Farm, Othery	A	12		12									
,,		Little England Farm, Othery	A	9		9									
,,	313	Pathe	A		**64**	64									
G 11–12	314	Beer-Henley	A		**79**	79									
G 13	315	Red Lake, near Dundon	A		**2**	2									
,,	316	Etsome Farm and Littleton			**18**										
,,		Etsome Farm	A	16		16									
,,		s.w. of Littleton Farm	A	2		2									
H 1	317	Ford			**66**										
,,		Ford House	A	47			21		20	6					
,,		*c.* ¼ mile E. of last	A	19			19								
,,	318	Davey's Farm	A		**31**	23	8								
H 2	319	Fitzhead			**50**										
,,		Groups in village	A	24					24						
,,		Groups N. of village	A	26		3	17		6						
H 3	320	Watts House, Bishop's Lydeard			**168**										
,,		Grounds of Watts House	CA	122		27	19	18	31	13		5	9		
,,		Covert N. of Lydeard House	C	46			44			1	1				
,,	321	Lynchfield House, Bishop's Lydeard	A		**2**					2					
H 5	322	The Grange, Kingston	A		**107**										107[5]
,,	323	Tainfield-Dodhill			**46**										
,,		Round pond w. of road at Tainfield	A	32			1		31						
,,		Dodhill, ¼ mile w.s.w. of last	A	14		14									
,,	324	Between Stonehouse Farm and Deacons	A		**13**	13									
H 5–J 5	325	Pyrland Hall and Okehills			**41**										
,,		Garden of Pyrland Hall	C	25		14		11							
J 5		Spinney at crossroads near Okehills	C	12			4		8						
,,		Outlier in park between the preceding groups	A	4		4									
H 6	326	West Monkton Rectory	C		**51**			7	37	1	1	5			
H 7	327	By Valley Pond, Thurloxton	C		**30**	11	16		3						
,,	328	West Newton, Manor Farm	A		**62**	62									
,,	329	Walford House			**184**										

1. Ilex, 17; Cedar, 13; Silver Fir, 4. 2. Larch. 3. Alder. 4. Spruce. 5. Pinus insignis.

TABLE I—*continued.*

Sheet and square	No.	Situation	Type of Site	No. of Nests 1933 (or 34)	Elm	Oak	Beech	S. Pine	Ash	Sycamore	Horse Chestnut	Lime	Other Trees
120													
H 7		Close to house, E. side	C	51		41		4					6[1]
,,		Groups S.E. of last on E. side of grounds ..	A	50	4	46							
,,		Covert E. of entrance	C	83	11			72					
,,	330	Old Barn, Durston	A	**53**	53								
H 8	331	Maunsell House, St. Michael Church	AC	**70**	60	3	7						
,,	332	Bankland Farm	A	**4**	4								
,,	333	Near Buckland Farm, Durston	A	**55**	55								
H 10	334	Stathe Court	A	**25**	25								
,,	335	Aller Court	A	**52**	52								
H 12	336	Low Ham, S.E. of Church	A	**22**	22								
,,	337	Pitney House	A	**4**	1		2						1[2]
,,	338	Between Pitney and Wearne		**22**									
,,		Hext Hill	A	20	20								
,,		c. ½ mile S.W. of Pitney Church	A	2	2								
,,	339	Pitney, near Cave's Farm	A	**23**	23								
,,	340	Langport Workhouse	C	**1**			1						
H 13	341	Somerton Door	A	**17**	17								
,,	342	The Lynch, Somerton	C	**35**	17					18			
H 14	343	Somerton Erleigh	A	**36**	36								
J 1 & 129 A 1	344	Sminhay and Bathealton		**124**									
J 1		N.E. of Sminhay between road and railway ..	A	29	16	13							
,,		¼ mile S.W. of last	A	11		11							
,,		Copse *c.* ½ mile N.E. of Bathealton	C	15		8	7						
,,		By road and in park, Bathealton Court ..	A	36		1	5	29	1				
129 A 1		Bathealton Churchyard	A	8				8					
,,		Plantation in park, N. of last	C	25	19				6				
J 2	345	Olands, Milverton	A	**28**		6	7	13					2[1]
J 3	346	Copse ¼ mile S.W. of Burge Farm, Heathfield ..	C	**188**		174			14				
J 4	347	Wick Farm and Green Covert		**40**									

,,		Wick Farm	A	31		31						
,,		Green Covert	C	9		7	2					
J 4–H 4	348	Norton Manor			211							93
J 4		Park of Norton Manor	A	209		114	86					
H 4		Outliers by farm ¼ mile to N.	A	2		2						
J 4	349	Montys Court			108							
,,		Trees approx. S.S.W. of house	A	89		76	13					
,,		Spinney S. of Montys Court grounds	C	6		5	1					
,,		Trees on opposite (N.) side of road	A	13		10	3					
,,	350	Barr, near Bishop's Hull	A		4	4						
J 5	351	Staplegrove			194							
,,		Groups round Norton-Fitzwarren-Taunton-Staplegrove cross roads	C	163		15	3		143	2		
,,		Groups in park of Staplegrove Manor	A	31		21	10					
,,	352	Chip Lane, Taunton			11							
,,		N. end	A	2		2						
,,		S. end	C	9		9						
,,	353	Near Obridge	A		10	10						
,,	354	Long Run Farm, Taunton	A		8	8						
,,	355	Musgrove Estate and Shire Hall, Taunton			21							
,,		Musgrove Building Estate	A	13		13						
,,		Shire Hall	A	8				1			1	6
J 6	356	Maidenbrook Lane, Cheddon Fitzpaine			29							
,,		W. of road	A	19		19						
,,		E. of road ¼ mile N.N.E. of last	A	10		10						
,,	357	By New Cut, Bathpool	A		18	18						
,,	358	Woodlands House, Ruishton	A		19	16		2		1		
J 7	359	Charlton			26							
,,		c. ¼ mile N.W. of Charlton Farm	A	23		23						
,,		N. side of Charlton House	A	3		3						
,,	360	Fields ½ mile S.S.E. of Ham	A		22	22						
J 8	361	North Curry and Moredon			266							
,,		North Curry Rectory	AC	21		21						
,,		Outskirts of village near farm on N. side of lane to Helland	A	7		7						
,,		Moredon	AC	238		238						
,,	362	Near Greenway			15							

1. Spanish Chestnut. 2. Atlas Cedar. 3. Alder, 8; Willow, 1.

TABLE I—*continued.*

Sheet and square	No.	Situation	Type of Site	No. of Nests 1933 (or 34)	Elm	Oak	Beech	S. Pine	Ash	Sycamore	Horse Chestnut	Lime	Other Trees
120													
J 8		s.w. of N. Curry between Greenway and road to Lillesdon	A	10	10								
,,		*c.* ½ mile s.e. of last	A	5	5								
J 10	363	Burton Pynsent		**364**									
,,		w. end of Burton Pynsent Wood	C	76	1			75					
,,		Adjoining Burton Pysent House	C	89	3		86						
,,		e. of last	C	199	56		140				3		
,,	364	Curry Rivel	A	**25**	25								
J 11	365	Langport and Huish Episcopi		**80**									
,,		s.e. of Langport East Station	A	32	32								
,,		Gateway, Langport	A	44	31		4						9[1]
,,		Near Huish Episcopi Church	B	4	2								2[1]
,,	366	Hurd's Hill, Langport	A	**81**	81								
J 12	367	Horsey Farm	A	**43**	43								
J 13	368	Long Sutton	A	**120**	120								
,,	369	Bineham Farm	A	**107**	107								
J 14	370	Black Ditch Drove	A	**133**	68	65							
121													
A 1	371	Lower Pitts Farm, Priddy	A	**5**†			5						
A 3	372	The Priory, Chewton Mendip	C	**59**†			38			21			
,,	373	Dudwell Field Farm	A	**6**†					3	3			
,,	374	Double House Farm	C	**129**†				12	7	110			
A 4	375	Fields ¾ mile w.n.w. of Emborough Church ..	A	**8**						8			
,,	376	Emborough Quarry	A	**21**					7	14			
A 5	377	Near Stratton House	B	**6**	6								
,,	378	Downside Abbey	A	**60**	24		19	12					5[2]
A 6	379	Charlton	A	**103**	24		79						
,,	380	Babington House	C	**121**	22	23		61			4		11[3]
A 9	381	Orchardleigh House		**66**									

,,		*c.* ¼ mile N.E. of house	C	54		10		2		1		41		
,,		Entrance lodge	A	12		10				2				
,,	382	The Downs, Orchardleigh	C		66	8		20	38					
A 10	383	Beckington	C		19*						19			
,,	384	Standerwick Court	A		35*				16		19			
,,	385	E. of Warminster-Standerwick road S. of railway			31									
,,		S. of lane from this road to Dilton Marsh	A	6		6								
,,		Just N. of county boundary	A	25		25								
,,		[Just S. of county boundary	A	3		3]								
A 10–B 10	386	Berkeley			92*									
A 10		Berkeley Rectory	A	39		39								
,,		Wood on opposite side of road	C	6			6							
,,		N. end of Berkeley	A	7		7								
B 10		Berkeley Marsh	A	17		17								
,,		Wood E. of road at S. end of Berkeley	C	23		21					1	1		
B 1	387	Wattles Hill			92									
,,		Wattles Wood	C	76				73	2	1				
,,		Between Wookey Hole-Wells and Wookey Hole-Wookey roads	A	16		16								
,,	388	Shortwood	? A		35	35								
B 2	389	Milton Lodge and Stoberry Park			97									
,,		Large plantation in grounds of Milton Lodge	C	52				36	12				4	
,,		Small copse by road opposite Milton Lodge	C	17						17				
,,		Stoberry Park	C	28					14					14[4]
B 2–C 2	390	Knapp Hill			79									
B 2		Knapp Hill Wood	C	64				26	9	28	1			
C 2		S.E. of last, wood bordering Bath road	C	15		1		4	10					
B 2–3	391	East Horrington			51									
B 2		Nettlecombe	C	36		27	9							
B 3		Hobbs Farm, East Horrington	? A	15				10	2			3		
,,	392	Masbury turning on E. Horrington-Slab House rd.	A		3					3				
B 4	393	Near Binegar Station	A		10			3		3	4			
,,	394	Ashwick and Oakhill			230									
,,		Ashwick churchyard	A	51				43	7					1[2]
,,		*c.* ¼ mile S.S.E. of last at intersection of 5 roads	A	4							4			
,,		Ashwick-Oakhill road, ¼ mile further S.	? B	50				24	14		12			
,,		Park at Oakhill	B	32				32						
,,		Fosseway at Ashwick Grove	A	93				88					5	

1. Ilex. 2. Larch. 3. Spruce. 4. Larch, 2; Undetermined, 12.

TABLE I—*continued.*

Sheet and square	No.	Situation	Type of Site	No. of Nests 1933 (or 34)	Elm	Oak	Beech	S. Pine	Ash	Sycamore	Horse Chestnut	Lime	Other Trees
121													
B 4	395	By Shepton Mallet-Bath road, ½ mile s.w. of Oakhill	B	**21**			21						
B 7	396	Mells		**98**									
,,		Rectory corner and grounds	AB	42	+		+						
,,		Mells Park : by drive	A	48		2	42		4				
,,		Ditto, Snatch Bottom	A	4					4				
,,		Ditto, Finger Lodge Valley	A	4			2	1					1[1]
,,	397	Chantry	A	**19**			6	9	4				
,,	398	Stoney Lane	A	**9**				9					
,,	399	Opposite Whatley School	A	**4**					4				
B 8	400	Lower Whatley	CA	**28**†	8	14			6				
,,	401	Mendip View, Frome	A	**9**	9								
B 9	402	Frome		**76**									
,,		Groups by Bath road N. of the following	A	10	10								
,,		Fromefield	A	4	4								
,,		Behind North Hill House	A	14	14								
,,		Spinney on opposite (W.) side of road	C	46	11		2			4	20	9	
,,		Cork Street	A	2	2								
,,	403	Easthill House and vicinity		**117**									
,,		Grounds of Easthill House	A	105	16	2	6	2		7	15	56	1[1]
,,		E. of G.W.R. opposite Easthill House	A	8	8								
,,		Badger's Hill	A	4	1		3						
,,	404	Rodden Rectory	A	**12**	12								
,,	405	Little Keyford and Blatchbridge Hill		**8**									
,,		Little Keyford	A	6	6								
,,		Blatchbridge Hill	A	2	2								
,,	406	Near Southfield Farm, s. of river nr. rly. bridge	A	**6**	6								
C 1	407	Ben Knowle Hill (scattered odd nests)	A	**9**	9								
,,	408	Melsbury Farm-Coxley Wick		**29**									
,,		Melsbury Farm	A	1	12								
,,		Between last and Coxley Wick	A	12	17								

C 2	409	St. Cuthbert's Lodge, Wells	A	7	**10**			10						
,,	410	Dulcote and Dinder			**36**									
,,		Between Dulcote and Dinder House	A	15		15								
,,		By entrance to Dinder House	A	3		2		1						
,,		Opposite (s.) side of road to last	A	18		18								
,,	411	Near Dulcote Hill, s. of railway	A		**19**	19								
,,	412	Twinhills	A		**9**	9								
C 4	413	Near Millbrook Farm	A		**29**†	5				24				
,,	414	Shepton Mallet			**20**†									
,,		N.E. of G.W.R. Station	C	14		10		2					2	
,,		¼ mile E.N.E. of last, N. side of Frome road ..	A	6		3					3			
C 6	415	Cranmore			**84**									
,,		N. and N.E. of Cranmore Hall	A	17		4			13					
,,		N. of Cranmore Cottage	A	3				+				+		
,,		W. and S. of Western Farm	A	64		+		+			+			
C 8	416	Marston Park and vicinity			**157**									
,,		Marston Park	? C	135		80		12		8		7		28[2]
,,		Lower Marston	?	18		17								1[1]
,,		Marston Back Lane	A	2		2								
,,		Ridgeway Lane	A	2		2								
C 9	417	Blatchbridge	C		**12**									12[3]
D 1	418	Keenhall Farm	A		**24**	24								
D 2	419	Launcherley	A		**61**	61								
,,	420	Foot of Launcherley Hill, S.E. end	A		**6**	6								
,,	421	North Wooton			**31**									
,,		In triangle of roads S. of village	A	13		13								
,,		Between village and Hearne House	A	12		12								
,,		Opposite Hearne House, S. of road	A	6		6								
,,	422	Whitelake River, c. 1 mile E. of bridge	A		**15**	15								
D 3	423	Burford	A		**3**	3								
,,	424	Westholme	C		**49**			27		22				
,,	425	Pilton			**9**									
,,		N. side road opposite turning to East Town ..	A	3		3								
,,		Rather further east	A	4		4								
,,		*c.* ¼ mile N. of last	A	2		2								
,,	426	Springfield House, Pilton	AC		**22**	3		3	12			4		
C 4–D 4	427	Charlton			**29**									

1. Undetermined. 2. Birch, 13; Undetermined, 15. 3. Larch.

TABLE I—*continued.*

Sheet and squore	No.	Situation	Type of Site	No. of Nests 1933 (or 34)	Elm	Oak	Beech	S. Pine	Ash	*nyeamore*	Horse Chestnut	Lime	Other Trees
121													
C 4		By Charlton Brewery	A	8			4			4			
D 4		Charlton House	A	14	14								
,,		N. side Wells-Frome road, *c.* ¼ mile N.E. of last	A	7					7				
,,	428	Near Cannard's Grave			**35**								
,,		Cannard's Grave	A	8					8				
,,		Beardley Batch, E. of Fosse Way	A	23	23								
,,		N. of Beardley Batch-East Compton road, ¼ mile W. of last	A	4					4				
D 5–C 5	429	Doulting			**34**								
,,		Groups S. of Wells-Frome road E. of Doulting	A	32					32				
C 5		Outliers in wood N. of road	C	2					2				
D 5	430	Brottens	C		**37**				37				
D 6	431	Wood *c.* ¼ mile S.E. of Small Down	C		**46**	32			14				
D 8	432	Witham Friary	B		**23**	23							
,,	433	Copse at Iron Mill Farm	C		**13**	13							
E 1	434	Near Edgarley Lodge	A		**24**	24							
,,	435	East Street	A		**115**	115							
E 2	436	Southtown			**34**								
,,		Hill N. of Southtown, by deep gully	C	21	7				14				
,,		By orchard S. of Southtown	A	13	13								
E 2–3	437	Withiel	A		**14**	13	1						
E 3	438	Pilton Park			**96**								
,,		N. of railway	A	13	13								
,,		Groups between railway and Pilton Park Farm	A	40	40								
,,		S. of Pilton Park Farm	A	43	18	25							
,,	439	Wooded gully ¼ mile W. of Drove	C		**17**	17							
E 3–F 3	440	Near East Pennard			**33**								
E 3		¼ mile S.S.E. of East Pennard	A	16	16								
F 3		Opposite Huxham turning W. of Wraxall cross roads	A	17	17								

E 4	441	E. of Fosse Way, ½ mile N. of Street-on-the-Fosse	A		**3**	3							
,,	442	Near Westbrook Farm	A		**6**	6							
E 5	443	Near Horsehill Farm	A		**11**	11							
,,	444	Copse ¼ mile S.W. of Rodmore Farm	C		**32**		32						
E 5–F 5	445	Southwood Common-Evercreech Junction			**26**								
E 5		Southwood Common, W. of main road	A	6		6							
,,		Wood Mill, between main road and railway	A	9		9							
F 5		E. of Evercreech Junction	A	11		11							
E 6	446	Westcombe	AB		**63**			3	55	5			
E 6–F 6	447	Whaddon House			*c.* **49**								
E 6		Copse c. ¼ mile W. of house	C	13				13					
F 6		Round house	A	*c.* 36			*c.*	36					
E 7	448	Near West Barn Farms	A		**6**		5			1			
,,	449	Near Upton Noble	A		**5**		5						
F 1	450	¼ mile S.S.E. of Butt Moor Bridge	A		**8**†	8							
,,	451	Park of Butleigh Court, near Moorhouse			**129**†								
,,		In wood	C	111		99	3		1	4			4[1]
,,		Trees in park	A	18		18							
,,	452	Butleigh Court, S.W. borders of grounds	A		**51**†	50		1					
,,	453	Park Wood, Butleigh	C		**262**†	96	141			25			
F 2–3 & G 2	454	Lottisham-Southwood			**96**								
F 2		Groups extending S.W. from Lottisham to N. of Southwood	A	59		59							
G 2		S. side of Southwood	A	15		15							
F 3		Between Lottisham and Stone	A	22		22							
,,	455	Near Stone Farm			**22**								
,,		¼ mile to N.W.	A	18		18							
,,		*c.* ¼ mile to S.W.	A	4		4							
,,	456	Groups extending ½ mile S. from Kilkenny	AC		**51**	51							
,,	457	½ mile N.W. of Four Foot	A		**21**	21							
F 3–G 3	458	Near Easton Town			**48**								
F 3		400 yds. N.W. of Bolter's Bridge	A	17		17							
G 3		400 yds. S. of Easton Town	A	31		31							
F 4	459	Castle Cary Station	A		**6**	6							
F 6	460	Bruton			**33**								
,,		Combehill House	A	19		9		10					
,,		R. Brue, E. of town	A	6		3							3[2]

1. Austrian Pine. 2. Birch.

TABLE I—*continued.*

Sheet and square	No.	Situation	Type of Site	No. of Nests 1933 (or 34)	Elm	Oak	Beech	S. Pine	Ash	Sycamore	Horse Chestnut	Lime	Other Trees
121.													
F 6		Higher Backway	A	6			6						
,,		King's School	A	2						2			
,,	461	Mill ½ mile s.w. of Bruton	A	**10**	10								
F 7	462	Colinshays House	A	**108**	3	32	7		17	35			14[1]
,,	463	½ mile N.E. of Bull Inn	B	**34**		27							7[1]
G 1	464	Kingweston House		**91**									
,,		Shrubbery by western entrance drive	C	37			37						
,,		Open parkland s. of last	A	7			7						
,,		By drive from entrance in village	CA	47	15	1	15			2		4	10[2]
G 2	465	By Brue near West Lydford	A	**14**	14								
,,	466	West Lydford Rectory	C	**25**	1				1		23		
,,	467	Keinton Mandeville	A	**3**	3								
G 3	468	Spinney by R. Brue *c.* ½ mile w. of Alford	C	**16**		16							
,,	469	Wheathill	AB	**34**†	5	27		1	1				
,,	470	½ mile E. of Lovington	A	**48**		48							
G 4	471	Alford House	AC	**72**	13	4	1	54					
G 5	472	Hadspen House	C	**50**			7		43				
,,	473	½ mile s.w. of Cole Station	A	**3**	3								
G 6	474	Redlynch House	C	**56**	11		32	13					
,,	475	N.E. of the Towers, Shepton Montague	B	**16**		3		1	12				
G 7	476	¼ mile N. of Barrowlane Farm	A	**33**		33							
H 1	477	w. of Charlton Adam-Keinton Mandeville road	A	**2**	2								
,,	478	Charlton Mackrell		**33**									
,,		Between railway and the Taunton road	ABC	30	28		2						
,,		Near Rookery Farm	A	3	3								
,,	479	By R. Cary, w. of Charlton Mackrell	A	**10**		10							
H 2	480	Babcary		**43**									
,,		w. of Fosse Way	A	9	9								
,,		w. of Babcary Rectory	A	11	11								
,,		E. of Babcary Rectory	A	23	23								

,,	482	E. of Fosse Way *c.* ½ mile N.N.W. of Cary Fitzpaine	A		**46**	46					
,,	483	Near Steart			**21**						
,,		*c.* ¼ mile W. of Steart	A	14		14					
,,		*c.* ¼ mile S.W. of last	A	7		7					
H 3	484	Near Foddington			**11**						
,,		*c.* ½ mile E. of Foddington	A	3		3					
,,		*c.* ¼ mile S.W. of last	A	8		+	+				
,,	485	Wood *c.* ¾ mile S.W. of South Barrow	C		**27**		+		+		
H 4	486	South Barrow	A		**36**	36					
H 5	487	Yarlington			**103**						
,,		Yarlington House	C	101			41	57		3	
,,		Outlier by Yarlington-Woolston road ..	A	2			2				
H 6	488	½ mile E. of Jack White's Gibbet	B		**16**			1	15		
,,	489	Holbrook			**20**						
,,		Entrance to Holbrook House	B	8				1	7		
,,		200 yds. S.E. of last	? A	12					12		
,,	490	Copse E. of Holton-Cheriton fork on the Wincanton-Ilchester road	C		**33**		33				
H 7	491	Windmill Hill, Wincanton	A		**22**	1	1	20			
H 8	492	Spinney by stream ¼ mile N.E. of Stoke Trister	C		**34**		34				
,,	493	Lane *c.* 3 furlongs S. of Stoke Trister	A		**6**		6				
J 1	494	Copse N of road between Lyte's Cary & Kingsdon	C		**5**	5					
,,	495	Kingsdon			**12**						
,,		Kingsdon Park	A	7		7					
,,		Cross roads, ¼ mile W. of last	A	5		5					
,,	496	Copse ½ mile S.E. of Red Post Cross	A		**30**	30					
J 1–2	497	Groups about the Fosse Way near Lyte's Cary ..			**99**						
J 1		Between the Fosse Way and Lytes Cary ..	A	26		23	3				
,,		W. of Fosse Way near Podimore Cross ..	A	8		8					
,,		E. side of Fosse Way opposite first group ..	A	56		56					
J 2		E. side of Fosse Way, ¼ mile N. of last ..	A	9		9					
,,	498	Cary Fitzpaine			**57***						
,,		Grassy lane E. of Cary Fitzpaine	A	45		45					
,,		Fields ¼ mile S.W. of last	A	12		12					
,,	499	Stockwitch Cross-Bridgehampton			**69***						
,,		Groups *c.* ½ mile N.W. of Stockwitch Cross ..	A	52		52					
,,		Outliers towards Bridgehampton	A	17		17					

1. Undetermined conifers. 2. Ilex, 8; Redwood, 2.

TABLE I—*continued.*

Sheet and square	No.	Situation	Type of Stte	No. of Nests 1933 (or 34)	Elm	Oak	Beech	*S.* Pine	Ash	Sycamore	Horse Chestnut	Lime	Other Trees
121													
J 3	500	Wood W. of park of Hazlegrove House	C	**109***		109							
,,	501	Sparkford		**55***									
,,		Spinney on N. side of Sparkford-Ilchester road	C	16	4	12							
,,		Sparkford Hill	C	39		1			35	3			
J 4	502	Sparkford Hall	C	**33***	25	8							
,,	503	Sutton Montis		**36***									
,,		S. side of Corton Denham-Queen Camel road..	A	24	24								
,,		N. of same road	A	12	10		1			1			
,,	504	½ mile S. of Weston Bamfylde	A	**21**	21								
J 5	505	Warren Hill, Compton Pauncefoot	B	**62**			62						
,,	506	*c.* ¼ mile N.E. of Blackford	A	**26**	15	11							
J 6	507	Lattiford	?	**7**				7					
,,	508	Charlton Hill	C	**59**				59					
J 7	509	Horsington Marsh	A	**45**		10	14	21					
H 8–J 8	510	Cucklington		**47**									
H 8		Wood above Cucklington Rectory	C	21		5	6	6	4				
J 8		Shanks House	C	14	9	5							
,,		Near Clinger Farm	A	12		12							
,,	511	Marsh Court-Rodgrove		**66**									
,,		*c.* ¼ mile N. of Marsh Court	A	17	17								
,,		Groups S.W. of Marsh Court	A	8	8								
,,		Wood on N. side of road at Rodgrove ..	C	30		30							
,,		Field S. of road at Rodgrove	A	11	11								
128													
A 13	512	Combe Copse	C	**135**			135						
129													
A 1	513	Kittisford		**66**									

,,		Bank of Tone *c.* ¼ mile s. of last	A	21										21[1]
,,	514	Ham Wood	C		6					6				
,,	515	Wellisford Manor			82									
,,		Laurel covert above house	C	56										56[2]
,,		By house, alongside road	? A	26				1						25[3]
A 2	516	Chipley			152									
,,		Plantation on w. of Milverton-Langford Budville road	C	124			117	1	2	1	1			2[3]
,,		Chipley Park	A	28									28	
,,	517	Pixton Barton	C		51	2	13		34	2				
A 2–3	518	Nynehead			247									
A 2		Grounds of Nynehead Court, by stream ..	C	92					92					
,,		Ditto, by old canal	C	20					20					
A 3		Ditto, at weir by Hornshay Farm	C	11					11					
,,		*c.* 1 furlong N.E. of last	C	22			7		15					
,,		Both sides of G.W.R. by old back entrance of Court	A	88			62		26					
,,		w. of last, by pond s. of G.W.R.	C	14			14							
A 4 & 120 J 4	519	Hele			88									
A 4		Wood by R. Tone at Hele Hill	C	74			51			17	3			3[4]
120 J 4		Between Hele and Upcott	A	14		14								
A 4	520	Rumwell			103									
,,		Rumwell Hall and copse opposite	C	69		19			42			6	2	
,,		N. side main road *c.* ¼ mile N.E. of last ..	A	30		30								
,,		s. side main road rather over ¼ milefrom first group	A	4		4								
,,	521	Chilliswood Farm	A		66	66								
,,	522	Copse w. of road from Cutsey House to Dyer's Green	C		37	29				8				
A 5–6	523	South-east Taunton			44									
A 5		s. of St. George's R.C. Church	A	6			6							
,,		Elmfield, South Road	A	27		19				8				
A 6		s. of South road *c.* ¼ mile S.E. of last	A	11		11								
A 5	524	Near Sherford Farm	A		55	55								
,,	525	Batts Park and Queen's College, Taunton ..			95									

1. Aspen. 2. Larch, 7; Spruce, 38; White Willow, 11. 3. Spruce. 4. Field Maple, 2; Larch, 1.

TABLE I—*continued.*

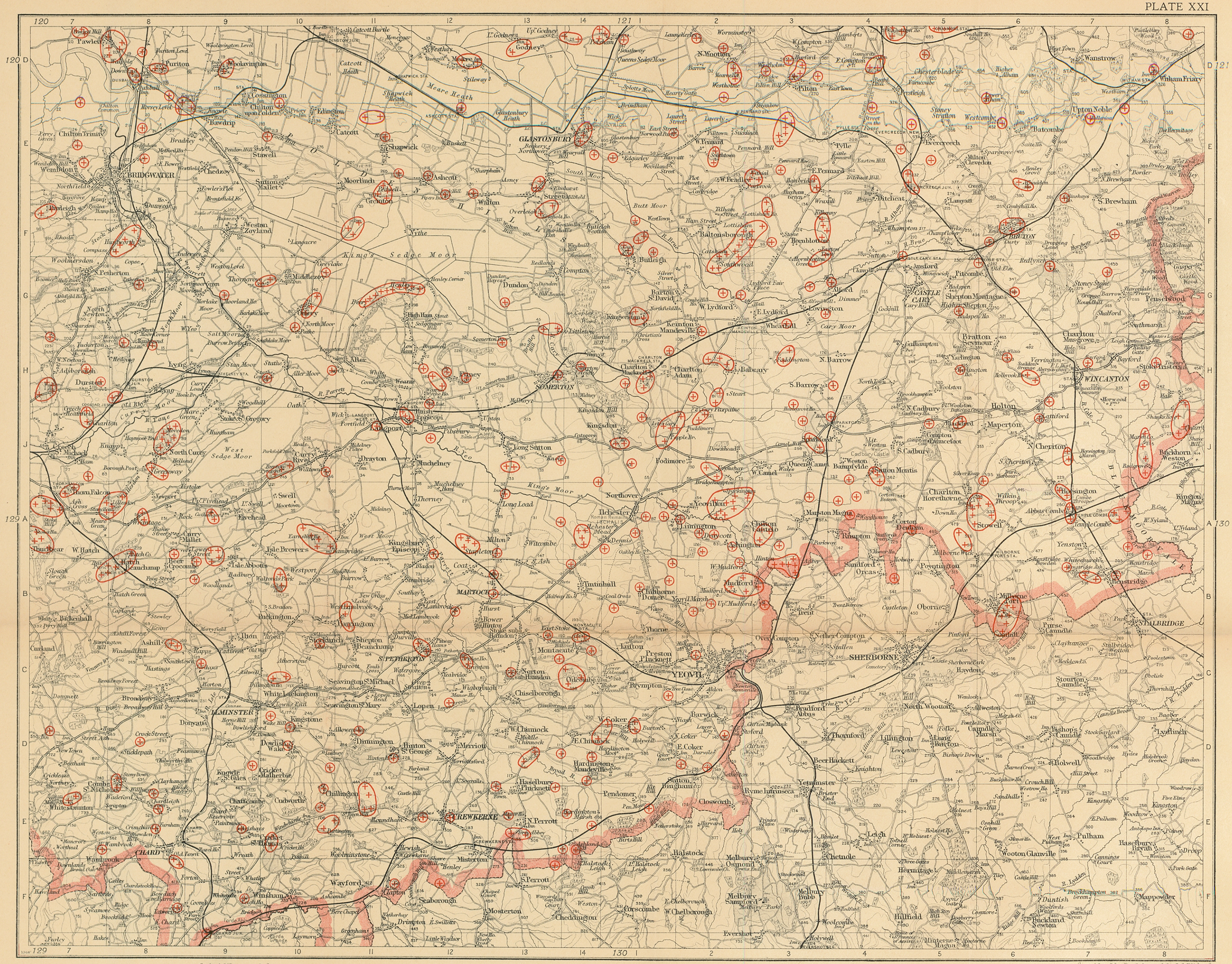
Sheet and square	No.	Situation	Type of Site	No. of Nests 1933 (or 34)	Elm	Oak	Beech	S. Pine	Ash	Sycamore	Horse Chestnut	Lime	Other Trees
129													
A 5		Batts Park	A	91	91								
,,		Behind Queen's College	A	4	4								
,,	526	*c.* ½ mile S.E. of Sherford	A	**26**	26								
,,	527	Amberd House, Staplehay	CB	**19**				16				3	
A 6	528	N. of Stoke Road, Taunton	A	**3**	3								
,,	529	Shoreditch and Orchard Portman		**123**									
,,		Angle of lane off main road between Shoreditch and Fullands	A	5	5								
,,		Scattered groups, Shoreditch-Orchard Portman	A	118	115			3					
A 6–7	530	Stoke St. Mary		**151**									
,,		E. of road between Greenway Farm and Stoke	A	11	11								
,,		Groups near Stoke House	A	43	43								
A 7		Groups N. and N.W. of Stoke Court	A	93	78	15							
,,		¼ mile E.S.E. of Stoke Court	A	4	4								
,,	531	Thorn Falcon		**42**									
,,		By Rectory	A	16	16								
,,		Thorn Lane, close to Court House	A	26	26								
,,	532	Henlade		**88**									
,,		Grounds of Henlade House	AC	69	61		7				1		
,,		Outliers to W. towards Arundell's Farm	A	6	6								
,,		Near Kennels	A	13	9	4							
A 7–8	533	Lillesdon		**49**									
,,		Groups nr. Lillesdon Court and old canal	A	40	40								
A 8		E. of road fork ¼ mile N.E. of Lillesdon Court	A	9	9								
,,	534	Wrantage		**38**									
,,		N. side of main road	A	13	13								
,,		S. of main road near School	A	25	25								
,,	535	Pile Lane, Curry Mallet	A	**20**	20								
A 9	536	Cathanger Farm, Fivehead	A	**38**	38								
A 9–B 9	537	W. of Fivehead River, W. of Isle Abbotts	A	**101**	101								

A 10	538	Earnshill						**472**							
,,		The Pond	C	291		+	+		18						
,,		Earnshill House	C	149		125			24						
,,		Round Covert	C	19		1			18						
,,		Earnshill House entrance	C	13		5			8						
A 12	539	S.E. of Stapleton Mead Farm	A		**156**	151	5								
,,	540	Kingsbury Episcopi Rectory	C		**54**	36									18[2]
A 13	541	Long Load	A		**1**	1									
,,	542	Stapleton Farm	A		**17**	17									
,,	543	Bearley Farm	A		**8**	8									
A 14	544	N. of Broad Leaze Farm	A		**75**	64						11			
B 1	545	Tremlett Hall	C		**72**	4	8	11	31	9	8	1			
,,	546	Wiseburrow Farm	C		**50**[1]			50							
B 2	547	Easterlands	A		**72**	24			41						7[3]
B 2–3	548	Wellington			**131**										
B 2		Court Fields	A	36		36									
,,		Groups near Nowers House	A	34		34									
B 3		Wellington Churchyard and Vicarage	AB	29		10	6		13						
,,		Nr. Wellington School Junior Cricket Ground	A	1		1									
,,		Behind Oldway House	A	31		31									
B 4	549	Ruggin	A		**62**			2	60						
,,	550	Angersleigh			**150**										
,,		Angersleigh Court	C	103			1	1	101						
,,		Lowton	A	47		13			34						
B 5	551	Poundisford			**110**										
,,		Poundisford Lodge	C	44					41						3[4]
,,		Poundisford Park	C	6			6								
,,		Barton Grange Entrance	C	60			2	58							
,,	552	Monk's Walk, Barton Grange	C		**162**		61	95		6					
B 6	553	Winter Well	A		**46**	46									
,,	554	Staple Fitzpaine			**26**										
,,		Manor House	A	12					12						
,,		Rectory	A	14					14						
B 7-8 & A 8	555	Hatch Beauchamp			**487**										
B 7		Little Oakley Plantation, Hatch Park	C	160		3	143			14					
,,		Hatch Park, N. of house	C	30			6		24						
,,		Ditto, near dairy	A	8		8									

1. On county boundary; some of the nests probably just in Devon. 2. Ilex, 13; Aspen, 5. 3. Spruce. 4. Pinus insignis.

TABLE I—*continued.*

Sheet and square	No.	Situation	Type of Site	No. of Nests 1933 (or 34)	Elm	Oak	Beech	S. Pine	Ash	Sycamore	Horse Chestnut	Lime	Other Trees
129													
B 8		Ditto, wood in E. of grounds	C	236	161		1	63	2	1			8[1]
,,		Hatch Court Entrance	A	7	5			2					
A 8–B 8		Hatch Court, N.E. and S. of house	BA	46	27						19		
B 9	556	Park Farm, Curry Mallet	A	**20**	20								
,,	557	¼ mile E. of Beer Mill Farm	A	**111**†	111								
B 10	558	Walrond's Park and Golden Hill		**146**									
,,		Walrond's Park	A	51	51								
,,		Wood N.E. of Golden Hill	C	80	80								
,,		Copse *c.* 150 yds. E. of last	C	15	8			7					
B 11	559	Barrington		**139**									
,,		N.E. of Barrington Court	A	95	95								
,,		Between Barrington and Shepton Beauchamp	A	44	44								
B 12	560	Parrett Works	C	**58**				25					33[2]
B 13	561	Martock Station	A	**3**	3								
,,	562	Ashfield, Martock	A	**76**	7			39	1		3		26[2]
B 14	563	Fosse Way, ¼ mile N.W. of Tintinhull	A	**48**	6	42							
C 4	564	Churchstanton	C	**62**				61		1			
C 8	565	Ashill	A	**30**†	30								
C 9	566	Jordans	C	**34**†	34								
C 10	567	Stocklinch Ottersey	C	**64**	30		7	27					
,,	568	Dillington		**171**									
,,		Copse adjoining Dillington House to N. ..	C	19				19					
,,		Copse *c.* 50 yds. N. of last	C	47				46					1[2]
,,		Copse N.E. of Dairy House, Dillington Park ..	C	99	6			93					
,,		Round copse *c.* 50 yds. E. of last	C	6				6					
C 12	569	South Petherton		**15**									
,,		Oaklands		1	1								
,,		Vicarage		14				6					8[2]
,,	570	Bridge House and Eason Covert		**96**									
,,		Adjoining Bridge House	AC	25	11			10					4[3]



MAP ILLUSTRATING THE DISTRIBUTION OF ROOKERIES IN SOMERSET, 1933-4.—III.

The Grid Lines are drawn, by permission, to correspond to those on the One-Inch Ordnance Survey sheets, Popular Edition.

		Eason Covert, ¼ mile S.E. of last	.. ..	C	71		65		6					
,,	571	Little Lopen		A		**54**	54							
C 13	572	East Stoke		A		**3**	3							
,,	573	Bateman's Barn, Montacute		A		**16**	1		10	2				3^4
,,	574	Norton Manor		A		**22**								22^2
C 14	575	Lower Town, Montacute		A		**20**	1	9	10					
,,	576	Montacute Park		? A		**60**	11			49				
,,	577	Pit Wood, Odcombe				**57**								
,,		N.W. corner of wood		C	21					21				
,,		S.E. part of wood		C	16					16				
,,		Round Hill Covert, nr. Odcombe		C	20		4			16				
D 4	578	Beerhill Farm		B		**3**					3			
D 5	579	Otterhead				**48**								
,,		At entrance		C	29					14	7			8^1
,,		At back of house		A	19			1	5			11		2^1
,,	580	Churchingford				**53**								
,,		By Royston House		A	48			2	35		10			1^5
,,		E. of Churchingford cross roads		A	5				5					
D 7	587	Buckland House		C		**7**			7					
D 8	582	Barley Hill		C		**18**†			12	6				
D 8–E 8	583	Combe St. Nicholas				**74**								
D 8		Combe Head House		B	47				10	37				
,,		S. side of Combe St. Nicholas-Northay road ..		B	7				7					
E 8		Vicarage		B	20				20					
D 9	584	Oxenleys Covert, Cricket Malherbie		C		**97**†		75	3	14				5^1
D 10	585	Wake Hill, Kingstone		C		**16**	2			14				
,,	586	Pertwood Copse, Ilminster		C		**41**	39			2				
,,	587	Chibley Copse		C		**20**†		17	3					
D 11	588	Dinnington		A		**19**†	12	7						
,,	589	Hinton House		A		**30**†								30^6
D 13	590	Crewkerne-Yeovil road				**72**†								
,,		Spinney by Foxwell Bridge		C	63					63				
,,		Near turning to West Chinnock		A	9		9							
,,	591	Lane running S. from main road to Broad Farm		A		**10**				10				
D 14	592	Copse *c.* ½ mile S. of Coker Hill Farm		C		**5**				5				
,,	593	Bridge Close Farm		A		**11**		11						
E 7	594	Whitestaunton				**125**								

1. Spruce. 2. Ilex. 3. Undetermined. 4. Larch. 5. Birch. 6. Douglas Fir.

TABLE I—*continued.*

Sheet and square	No.	Situation	Type of Site	No. of Nests 1933 (or 34)	Elm	Oak	Beech	S. Pine	Ash	Sycamore	Horse Chestnut	Lime	Other Trees
129													
E 7		Wood to N.E. of Whitestaunton-Northay road	C	91					89	2			
,,		Whitestaunton Manor	B	34				25		9			
,,	595	*c.* ¼ mile E. of Higher Wambrook	AC	**181**			63		118				
E 8	596	N.E. of Chardleigh Green	A	**42**				42					
,,	597	Langham	A	**14**	14								
,,	598	Crimchard	A	**21**	17						4		
E 9	599	Avishays	C	**11**			5	6					
E 10	600	Chillington	B	**6**†	6								
,,	601	Higher Chillington	AC	**24**†			24						
,,	602	Cricket St. Thomas		**65**†									
,,		By main road at White Down	A	21			21						
,,		Grounds of Cricket House, s. of last	A	44			44						
,,	603	Near Purtington		**78**†									
,,		s. of Newhouse Farm	B	3					3				
,,		Wood ¼ mile N.N.E. of Newhouse Farm ..	C	75		20		12	40	3			
E 11	604	Warren Hill and Lodge Farm		**123**†									
,,		Copse between Lodge and Hill Farms ..	C	16		10			6				
,,		Lodge Farm	A	2		2							
,,		Warren Hill	C	105			10	1	73	21			
E 12	605	Maincombe	C	**89**†		26	2	6	50	5			
,,	606	Crewkerne	A	*c.* **10**†	+		+	+					
E 13	607	Haselbury Firs	C	**37**†				37					
E 13	608	Near East Leaze Farm	A	**17**†		5		12					
,,	609	Manor House, North Perrott	C	**47**†			47						
,,	610	North Perrott		**67**†									
,,		w. of Grey Abbey Farm	C	42		42							
,,		¼ mile E.S.E. of Grey Abbey Farm	C	25		25							
E 13–14	611	Frenchays	C	**55**†		55							
E 14	612	*c.* ½ mile w. of Cowcroft Farm	C	**4**				4					
,,	613	Between Marsh Farm and railway	A	**39**		39							

,,	614	Ashland Hill	C		**53**		53						
F 8	615	Chard			**10**								
,,		The Grange	?	2					2				
,,		Chard-Forton road S.E. of last	A	8		8							
,,	616	Parrocks Lodge, Tatworth	A		**65**				27			38	
F 9	617	Leigh House	A		**89**		26		48				15[1]
F 11	618	Clapton Court	? A		**53**†		3		39	6			5[2]
F 12	619	Wood off Misterton-Seaborough Lane	C		**34**†		1			33			
F 13	620	Wood Dairy	C		**107**†		107						
G 9	621	Chard Junction	A		**10**	10							
130													
A 1	622	R. Yeo, ½ mile W. of Yeovilton	C		**25**		+	+					
,,	623	By cemetery between Ilchester and Limington	A		**3**	3							
,,	624	N.W. corner of Limington	A		**6**	6							
,,	625	Yeovil road ½ mile S. of Ilchester	A		**57**	57							
,,	626	Ilminster road *c.* 1 mile S.W. of Ilchester	A		**45**	45							
A 2	627	Near Speckington			**210**								
,,		Groups between Speckington and the Yeo	A	99†		98	1						
,,		Groups between Chilton Cantelo-Bridgehampton and Marston-Bridgehampton lanes	A	111		110							1[3]
,,	628	Limington	A		**70**		+	+					
,,	629	Between Limington and Draycott	A		**4**	4							
,,	630	N.E. of Draycott	A		**5**	5							
,,	631	Copse ¼ mile S. of Draycott	C		**42**	38				4			
,,	632	Ashington	A		**14**	14							
A 3	633	Near Lambrook Bridge, Marston Magna	A		**26**	26							
,,	634	Chilton Cantelo			**46**								
,,		Covert *c.* ¼ mile S.E. of Chilton	C	17			17						
,,		Groups by lane, N. of last	A	21		21							
,,		¼ mile E. of last	A	8		8							
,,	635	E. of main road *c.* 1 mile S.W. of Marston Magna	A		**25**	25							
A 4	636	Wood *c.* ¾ mile N. of Rimpton	C		**62**	57	1	4					
,,	637	Near Corton Wood Farm	A		**19**	19							
,,	638	Woodhouse	A		**14**	14							
A 5	639	Wheatsheaf Hill, Corton Denham	C		**226**		138		73	10			5[4]
,,	640	Between Charlton Horethorne and Milborne Wick			**43**								

1. Spruce, 14; Larch, 1. 2. Ilex, 3; Spruce, 2. 3. Field Maple. 4. Hornbeam.

TABLE I—*continued.*

Sheet and square	No.	Situation	Type of Site	No. of Nests 1933 (or 34)	Elm	Oak	Beech	S. Pine	Ash	Sycamore	Horse Chestnut	Lime	Other Trees
130													
A 5		By barn ¾ mile S.S.W. of Charlton	A	25	25								
,,		Small covert to S.E. of last	C	18	4			3	11				
A 5–6	641	Charlton Horethorne		**88**									
A 5		Rectory	A	6			1						5[1]
A 5–6		Fields on E. and S.E. borders of village ..	A	33	31					2			
A 5		By lane to Stowell, ¼ mile S.S.E. of Charlton ..	A	25	25								
A 6		Hanglands Lane	A	6					6				
,,		¼ mile S. of last, N. of lane to Stowell ..	A	15	15								
A 5		E. of main road near Waterloo Crescent ..	A	3	3								
A 7	642	Horsington House	A	**27**						27			
,,	643	Abbas Combe and Temple Combe		**10**									
,,		Field between Temple Combe House and rly.	A	6	6								
,,		S. side of Temple Combe Station	A	4	4								
,,	644	Temple Lane and Common Lane		**43**									
,,		Off Temple Lane *c.* 1 mile E. of Temple Combe	A	20	20								
,,		E. of last near county boundary	A	13	13								
,,		Common Lane, ¼ mile S.W. of last	A	10	10								
,,	645	Mohun's Park	A	**17**	17								
A 8	646	Henstridge Marsh	A	**10**	10								
B 1	647	N. of Oakley Farm	A	**61**	61								
,,	648	¼ mile S of Oakley Farm	A	**4**	4								
,,	649	N. of Chilthorne Domer Church	A	**9**									9[2]
,,	650	½ mile S.E. of Cole Cross	A	**15**	11	4							
B 2	651	West Mudford	A	**14**	14								
B 2–3	652	Mudford		**48**									
B 2		Top of hill ¼ mile S.W. of West Mudford ..	A	9	9								
,,		¼ mile N.E. of Mudford Sock	A	16	16								
,,		By stream *c.* ½ mile S.W. of Mudford Church	A	17	+	+			+				
B 3		E. of main road ¼ mile S. of Mudford Bridge .	A	6	6								
B 2	653	¼ mile S.W. of Mudford Sock	A	**8**	8								

,,	654	Yeovil Marsh	A		**14**	14							
A 3–B 3	655	Groups N. and N.W. of Hummer	A		**53**	53							
B 3	656	Up Mudford	C		**16**		6		10				
B 4	657	Wood on Holway Hill	C		**147**	1	73			73			
B 6	658	Ven Hall, Milborne Port			**247**								
,,		In park to N. of main road	AC	59		50		5	4				
,,		In grounds near house (s. of road)	AC	149		96	1	26			23		3[3]
,,		Copse on southern borders of park	C	35		35							
,,		Copse outside park boundary, ¼ mile S.S.W. of last	C	4		4							
B 7	659	Inwood House	C		**42**								
,,		Wood near house	C	37			37						
,,		Outliers by drive to house	A	5			5						
,,	660	Henstridge			**22**								
,,		W. of Henstridge village	A	14		14							
,,		Drive to Inwood House	A	8		8							
,,	661	E. side of Henstridge near railway	A		**5**	5							
C 1	662	Copse S. of Bunford Flax Works	C		**74**		74						
C 2	663	Yeovil, on main road to Ilminster	C		**12**	3			8	1			
D 1 & 129 D 14	664	Between East Chinnock and West Coker ..			**95**								
129 D 14		S. of Coker Hill Farm	A	25		3	22						
D 1		The Wash, West Coker	? A	70		7	59		3		1		
,,	665	West Coker			**83**								
,,		The Hall	C	33			1		19				13[4]
,,		West Coker House	C	50		4			45				1[5]
D 2	666	Yeovil-Dorchester road N. of Whistle Bridge ..	C		**35**				35				
,,	667	Yeovil-Sutton Bingham rd. ½ mile N.E. of Sutton	C		**34**		18						16[6]
,,	668	S.E. end of park, Coker Court	C		**98**		54	30	14				
E 1	669	Pen Moor	A		**29**		29						

1. Plane. 2. Poplar. 3. Field Maple. 4. Cedar, 7; Spanish Chestnut, 6. 5. Larch. 6. Spruce.

TABLE II

NEST TOTALS AND DENSITIES IN TERMS OF THE 2-MILE SQUARES OF THE 1 INCH ORDNANCE MAP

Sheet and square	Total	Total per sq. mile	Sheet and square	Total	Total per sq. mile	Sheet and square	Total	Total per sq. mile	Sheet and square	Total	Total per sq. mile	Sheet and square	Total	Total per sq. mile	Sheet and square	Total	Total per sq. mile
110			**111**			**119**			**120**			**121**			**121**		
B 12	0	0	F 2	38	9·5	F 7	0	0	E 7	17	4·25	A 5	66	16·5	J 4	90	22·5
B 13	33	13·2	F 3	89	22·25	F 8	0	0	E 8	35	8·75	A 6	216	54	J 5	88	22
B 14	10	6·7	F 4	46	11·5	F 9	287	71·75	E 9	37	9·25	A 7–8	0	0	J 6	66	16·5
C 11–12	0	0	F 5	104	26	F 10–14	0	0	E 10	79	19·75	A 9	132	33	J 7	45	11·25
C 13	16	4	F 6	127	31·75	G 5–7	0	0	E 11	114	28·5	A 10	137	38·75	J 8	92	39
C 14	0	0	F 7	152	38	G 8	45	11·25	E 12	52	13	B 1	127	34·75			
D 10	0	0	F 8	29	7·25	G 9	0	0	E 13	12	3	B 2	197	49·25	**128**		
D 11	21	5·25	F 9	117	37·7	G 10	54	13·5	E 14	78	39	B 3	18	4·5	A 7–8	0	0
D 12–13	0	0	G 1	94	23·5	G 11	235	58·75	F 1	42	10·5	B 4	231	57·75	A 13	135	41·8
D 14	13	6·5	G 2	119	29·75	G 12	0	0	F 2	0	0	B 5	30	7·5	A 14	0	0
E 8	0	0	G 3	98	24·5	G 13	73	18·25	F 3	115	28·75	B 6	0	0	B 13–14	0	0
E 9	43	44·8	G 4	14	3·5	G 14	55	27·5	F 4	0	0	B 7	130	32·5			
E 10	10	2·5	G 5	24	6	H 7	0	0	F 5	325	81·25	B 8	37	9·25	**129**		
E 11	69	17·25	G 6	0	0	H 8	25	8·6	F 6	161	40·25	B 9	219	54·75	A 1	191	47·75
E 12	0	0	G 7	121	30·25	H 9	200	50	F 7	89	22·25	B 10	40	19	A 2	315	78·75
E 13	108	27	G 8	329	82·25	H 10–11	0	0	F 8	75	18·75	C 1	38	9·5	A 3	135	33 75
E 14	0	0	G 9	15	8·9	H 12	15	3·75	F 9–10	0	0	C 2	89	22·25	A 4	280	70
F 8	0	0	H 1	117	29·25	H 13	49	12·25	F 11	95	23·75	C 3	0	0	A 5	228	57
F 9	10	2·5	H 2	100	25	H 14	0	0	F 12	7	1·75	C 4	57	14·25	A 6	183	45·75
F 10	48	12	H 3	225	56·25	J 8	0	0	F 13	12	3	C 5	4	1	A 7	261	65·25
F 11	20	5	H 4	144	36	J 9	157	39·25	F 14	0	0	C 6	84	21	A 8	100	25
F 12	19	4·75	H 5	21	5·25	J 10	50	31·5	G 1	28	7	C 7	0	0	A 9	134	33·5
F 13	89	22 5	H 6	94	23·5	J 11–12	0	0	G 2	0	0	C 8	157	39·25	A 10	472	118
F 14	0	0	H 7	1	·25	J 13	372	93	G 3	377	94·25	C 9	12	3	A 11	0	0
G 8	0	0	H 8	12	3	J 14	25	12·5	G 4	329	82·25	C 10	0	0	A 12	210	52·5
G 9	50	12 5	H 9	109	27·25				G 5	166	41·5	D 1	24	6	A 13	26	6·5
G 10	76	19	H 10	33	44	**120**			G 6	143	35·75	D 2	113	28·25	A 14	75	37·5
G 11	22	5·5	J 1	0	0	A 7	13	13·7	G 7	49	12·25	D 3	83	20·75	B 1	122	40·6
G 12	63	15·75	J 2	60	15	A 8	181	45·25	G 8	127	31·75	D 4	56	14	B 2	142	35·5
G 13	23	5·75	J 3	98	24·5	A 9	151	37·75	G 9	33	8·25	D 5	67	16·75	B 3	61	15·25

G 14	0	0	J 4	332	83	A 10	38	9·5	G 10	213	53·25	D 6	46	11·5	B 4	212	53	
H 7	0	0	J 5	81	20·25	A 11	132	33	G 11	69	17·25	D 7	0	0	B 5	272	68	
H 8	153	41·4	J 6	63	15·75	A 12	29	7 25	G 12	10	2·5	D 8	36	9	B 6	72	18	
H 9	13	3·25	J 7	63	15·75	A 13	70	17·5	G 13	20	5	D 9	0	0	B 7	190	47·5	
H 10	209	52·25	J 8	197	49·25	A 14	0	0	G 14	0	0	E 1	139	34·75	B 8	281	70 25	
H 11	0	0	J 9	331	82·75	B 8	67	16·5	H 1	97	24·25	E 2	38	9·5	B 9	136	34	
H 12	46	11·5	J 10	18	8·45	B 9	61	15·25	H 2	50	12·5	E 3	139	34·75	B 10	146	36·5	
H 13	0	0				B 10	294	73·5	H 3	170	42·5	E 4	9	2·25	B 11	139	34·75	
H 14	57	28·5	**119**			B 11	119	29·75	H 4	2	·5	E 5	58	14·5	B 12	58	14·5	
J 7	58	47·2	B 5	42	48·5	B 12	151	37·75	H 5	191	47·75	E 6	76	19	B 13	79	19·75	
J 8	139	34·75	B 6–11	0	0	B 13	20	5	H 6	51	12·75	E 7	11	2·75	B 14	48	24	
J 9	186	46·5	C 5	0	0	B 14	102	51	H 7	319	79·75	E 8–9	0	0	C 1–3	0	0	
J 10	71	17·75	C 6	63	15·75	C 2–3	0	0	H 8	119	29·75	F 1	579	144·75	C 4	62	19·4	
J 11	15	3·75	C 7–8	0	0	C 4	85	32·2	H 9	0	0	F 2	59	14·75	C 5–7	0	0	
J 12	71	17·75	C 9	193	48·25	C 5–7	0	0	H 10	77	19·25	F 3	160	40	C 8	30	7·5	
J 13–14	0	0	C 10	0	0	C 8	29	7 25	H 11	0	0	F 4	6	1·5	C 9	34	8·5	
			C 11	128	36·5	C 9	84	21	H 12	72	18	F 5	11	2·75	C 10	238	59·5	
111			C 12	0	0	C 10	76	19	H 13	52	13	F 6	79	19·75	C 11	0	0	
B 1	0	0	D 3–4	0	0	C 11	118	29·5	H 14	36	18	F 7	142	35·5	C 12	159	39·75	
C 1–2	0	0	D 5	38	10·7	C 12	23	5·75	J 1	91	22·75	F 8	0	0	C 13	41	10·25	
D 1	0	0	D 6–9	0	0	C 13	124	31	J 2	28	7	G 1	91	22·75	C 14	137	68·5	
D 2	55	18·7	D 10	220	55	C 14	0	0	J 3	188	47	G 2	57	14·25	D 4	3	·91	
D 3	7	5·6	D 11	36	9	D 1	168	49·2	J 4	375	93·75	G 3	129	32·25	D 5	101	31·3	
D 4	41	13·8	D 12–13	0	0	D 2	20	5·4	J 5	252	63	G 4	72	18	D 6	0	0	
D 5	22	22·6	D 14	192	96	D 3	0	0	J 6	66	16·5	G 5	53	13·25	D 7	7	1·75	
D 6	0	0	E 3	0	0	D 4	129	32·25	J 7	48	12	G 6	72	18	D 8	72	18	
D 7	23	13·9	E 4	52	13	D 5	0	0	J 8	281	70·25	G 7	33	8·25	D 9	97	24·25	
D 8–10	0	0	E 5	70	17·5	D 6	461	115·25	J 9	0	0	G 8–9	0	0	D 10	77	19·25	
E 1	12	3	E 6	0	0	D 7	122	30·5	J 10	389	97·25	H 1	45	11·25	D 11	49	12·25	
E 2	25	6·25	E 7	74	18·5	D 8	210	52·5	J 11	161	40·25	H 2	112	28	D 12	0	0	
E 3	57	14·25	E 8	102	25·5	D 9	50	12·5	J 12	43	10·75	H 3	38	9·5	D 13	82	20·5	
E 4	58	14·5	E 9	110	27·5	D 10	13	3·25	J 13	227	56·75	H 4	36	9	D 14	41	20·5	
E 5	350	87·5	E 10	45	11·25	D 11	0	0	J 14	133	66·5	H 5	103	25·75	E 4 & 6	0	0	
E 6	117	29·25	E 11–12	0	0	D 12	48	12				H 6	69	17·25	E 7	306	76·5	
E 7	58	14·5	E 13	121	30·25	D 13	33	8·25	**121**			H 7	22	5·5	E 8	97	24·25	
E 8	140	35	E 14	288	144	D 14	66	33	A 1	5	1·25	H 8	61	17·8	E 9	11	2·75	
E 9	101	27·5	F 3–4	0	0	E 1	188	47	A 2	0	0	J 1	137	34·25	E 10	172	43	
E 10	20	167	F 5	91	22·75	E 2–5	0	0	A 3	194	48·5	J 2	135	33·75	E 11	123	30·75	
F 1	117	29·25	F 6	87	21·75	E 6	42	10·5	A 4	29	7·25	J 3	164	41	E 12	99	24·73	

TABLE II—*continued.*

Sheet and square	Total	Total per sq. mile	Sheet and square	Total	Total per sq. mile	Sheet and square	Total	Total per sq. mile	Sheet and square	Total	Total per sq. mile	Sheet and square	Total	Total per sq. mile	Sheet and square	Total	Total per sq. mile
129			**129**			**130**			**130**			**130**			**130**		
E 13	168	42	F 12	34	25·6	A 1	136	34	A 7	97	24·25	B 5	0	0	C 3	0	0
E 14	151	80	F 13	107	201	A 2	345	86·25	A 8	10	10·2	B 6	247	78	D 1	153	38·25
F 7	0	0	F 14	0	0	A 3	123	31·5	B 1	89	22·25	B 7	69	29·2	D 2	167	49·5
F 8	75	44	G 8	0	0	A 4	95	29·8	B 2	78	19·5	B 8	0	0	E 1	29	11 6
F 9	79	21	G 9	10	25·4	A 5	324	96	B 3	42	32·8	C 1	74	18·5	E 2	0	0
F 10	0	0	G 10	0	0	A 6	33	8·25	B 4	147	43·2	C 2	12	3·2			
F 11	53	18 5	G 10–11	0	0												

VI. An Analysis of the Distribution and Density of the Rook Population

With the material provided by the census we can now proceed to consider the actual distribution of rookeries and density of population and to enquire how far this can be correlated with tangible environmental factors.

Table II shows the number of nests per square mile in each of the squares of the 1-inch Ordnance map (which have sides of 2 miles each and an area of 4 square miles) and the small map of the county in fig. 1 illustrates the same results graphically. It is divided up into squares, corresponding to those of the Ordnance map, shaded to indicate the order of numbers of Rooks' nests per square mile in each.[1] To facilitate comparison with the results of the census of the Oxford district (or more properly the Upper Thames basin), the grouping of densities and the symbols adopted are the same as used by W. B. Alexander in his paper on the Oxford results (1). The matter is slightly complicated, however, by the fact that whereas the area adopted for the purpose of the Oxford investigation was a rectangle comprising an exact number of whole map squares, the county of Somerset is an entirely irregular area, so that many squares on its boundaries are only partly in Somerset, the remainder being either sea or part of an adjacent county. In the case of the latter class no doubt the ideal course, and the simplest from the point of view of subsequent calculations, would have been to have surveyed the whole square. But except in a very few cases this was found to be impracticable, the available help being only barely enough to cover all Somerset. In these cases, therefore, the area of the portion of the county included in the square has been calculated roughly from the map and the density determined for this portion alone.

A glance at Fig. 1 shows that the density is very far from uniform. It is naturally low on the inhospitable high ground of Exmoor, the Quantocks and Mendips, as is equally clear

[1] It must be observed, however, that at the east end of each whole sheet of the Ordnance map there is a vertical row of half squares with an area of 2 sq. miles each.

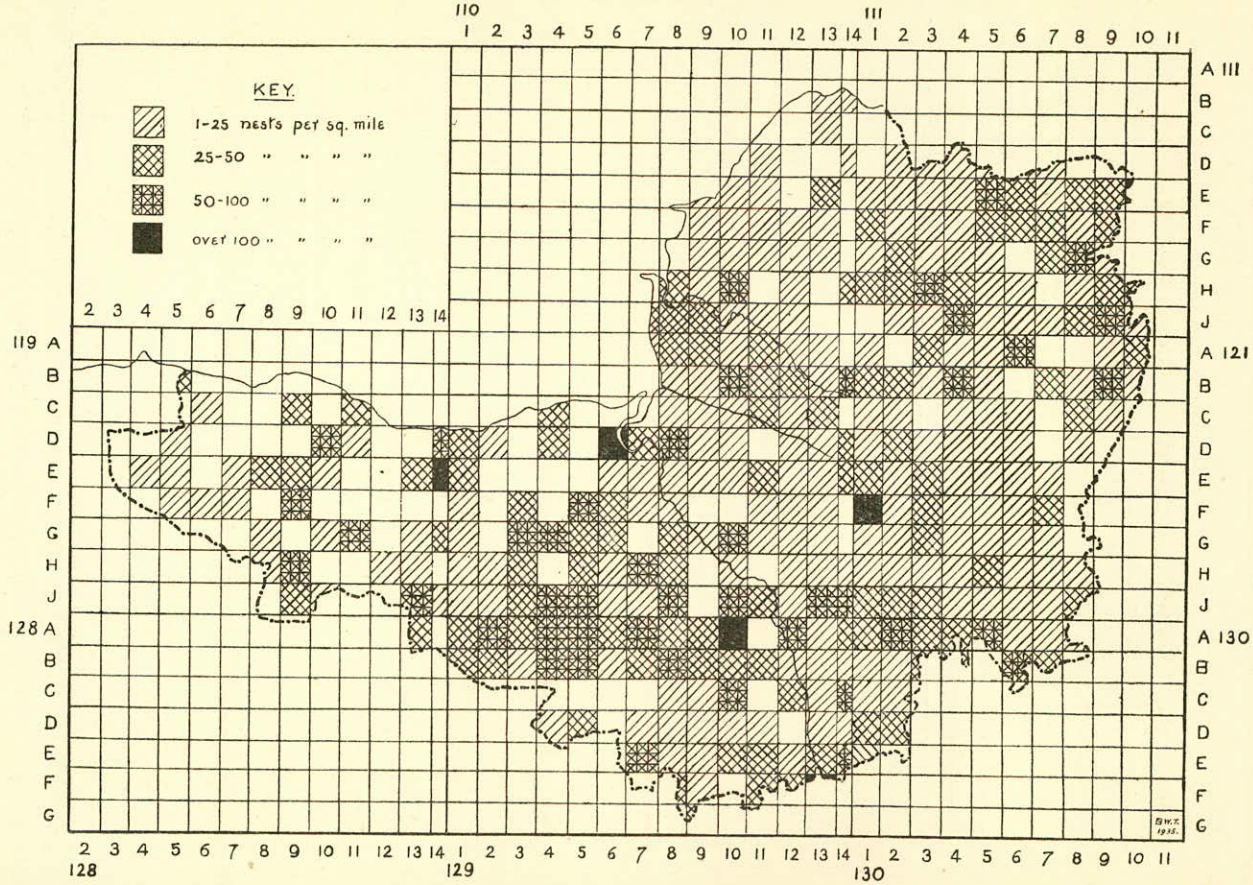


Fig. 1. MAP OF SOMERSET SHOWING DENSITY OF ROOK POPULATION IN TERMS OF THE 2-MILE SQUARES OF THE 1-INCH ORDNANCE MAP

from the large scale map of sites, but even apart from this the distribution is distinctly irregular. Lest Fig. 1 should emphasize purely local and perhaps partly fortuitous variations in density too much, the expedient has been adopted (again in conformity with the Oxford paper) of grouping the squares of Fig. 1 into fours to form larger squares of 16 sq. miles each[1] (Fig. 2) and calculating the density for each of these. This method, by smoothing out minor local differences, serves to show that very real differences do exist, but the fact is that for purposes of attempting to correlate them with variations in local conditions, it spreads out the differences too much, and in discussing this subject reference will be made mainly to figure 1.

(i) THE MAJOR FACTORS AFFECTING DISTRIBUTION

Clearly this widely distributed and plentiful bird is not narrowly dependent on any one environmental factor, and its population density is evidently controlled within pretty wide limits by the interaction of several. Of these the condition of the land in respect of vegetation and agriculture, geological formation and altitude appear to be the chief, the last two acting mainly or almost entirely through their effect on the former, which in its turn operates through its influence on the food-supply, the ultimate limiting factor. It thus becomes necessary to consider to what extent it is possible to disentangle these several effects, always remembering that even an ideally perfect assessment of their relative importance would probably not render an exact correlation possible, because something must always depend on what may be called the historical factor, the largely irrecoverable facts of just how one site was colonized from another, of dispersal by timber-felling or other forms of human interference, of the former condition of the land, and so on.

[1] Or rectangles of 12 square miles on the eastern border of each sheet of the Ordnance map—*cf.* previous footnote. Portions of squares on the borders of the county have been treated separately where the area exceeds 8 square miles. Where the area is less it is fused with an adjacent whole square or another incomplete one.

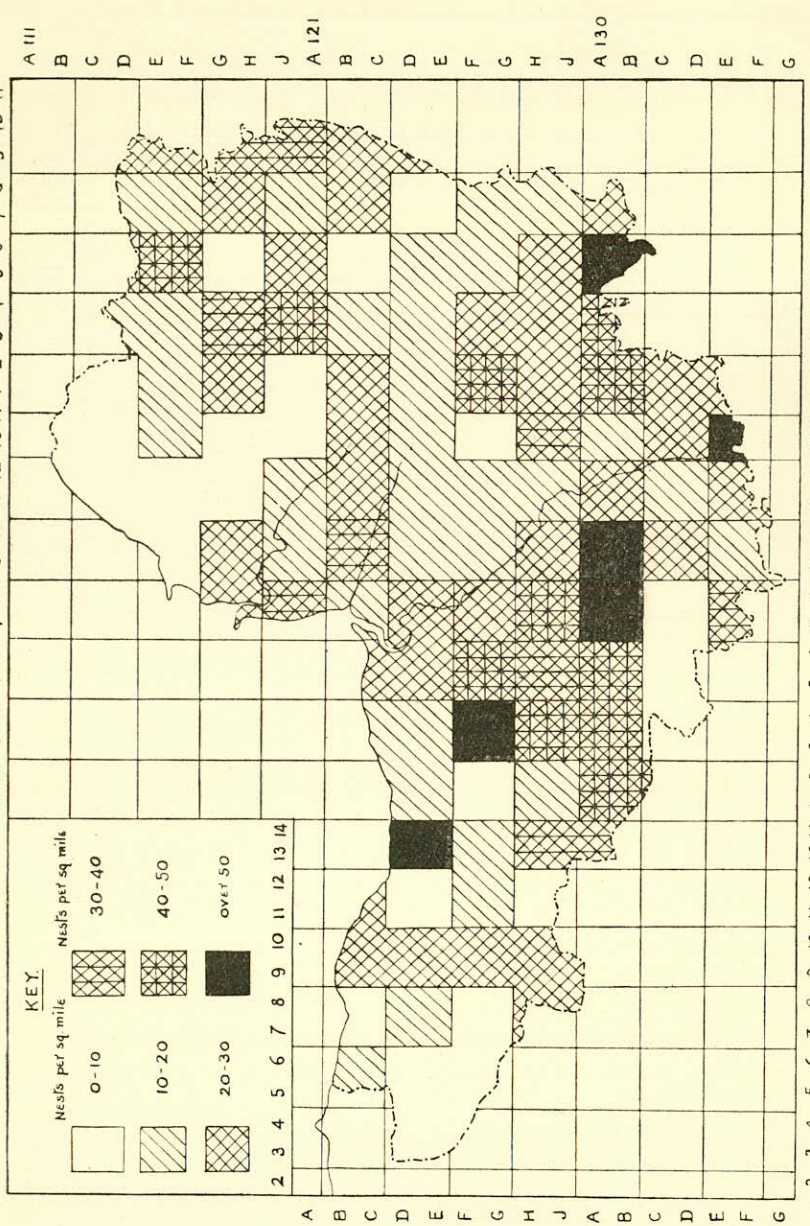


Fig. 2. MAP OF SOMERSET SHOWING DENSITY OF ROOK POPULATION IN TERMS OF 4-MILE SQUARES

(*a*) GEOLOGICAL FORMATION AND SOIL

Before proceeding to discussion it is necessary to take note of the actual environmental background against which the results must be considered, and it will be convenient to take first of all the geological formations and the soils which depend upon them. It may be observed at this point that in Somerset the soils are but little affected by drift ; " they are due so directly to the outcropping formations that geological boundary lines can be traced across ploughed fields from the evidence of weathered fragments of the underlying rocks " (Woodward (20).

It must be admitted that for our purpose the geological complexity of Somerset does not make for easy analysis. The belt of country extending from South Gloucestershire through Somerset to the South Coast is the most geologically diversified in southern England, and over about half our area the country is so much broken up between different geological formations that it is difficult to find one map square, and still more two or more squares together, on the same formation. Only in West Somerset is there a continuous area of any large extent on a single formation, the Devonian.

The general topography of the county will be familiar to most readers. Its chief characteristics are the considerable tract of high moorland in the west and the large area of low-lying flats extending inland from the shores of the Bristol Channel and penetrating far into Central Somerset. The remainder of the county may be described as for the most part moderately hilly, though, apart from the Mendips in the north and the Blackdowns in the extreme south, consisting largely of somewhat confused and irregular elevations of no great height (*cf.* p. 207).

The lowlands are well watered and the Exmoor country is also well provided with streams. The Mendips on the other hand, owing to the porosity of the limestone, are notoriously deficient in surface streams, while the hilly country of East Somerset to the southward of the Mendips is also distinctly poorly watered. This is similarly true of a good deal of more or less elevated ground to the north of the Mendips, which,

however, differs from that of East Somerset in being broken up to some extent by several fair-sized stream valleys, occupied by tributaries of the Avon.

The principal uplands are formed by outcrops of hard Palaeozoic rocks : the Carboniferous Limestone, forming the long tableland of Mendip, with outliers at Broadfield, Leigh, and Portishead Downs, the Devonian sandstones, grits and slates in the Quantocks and the high ground of Exmoor and the Brendons. Along the foot of these uplands the Palaeozoic strata dip under the covering of Secondary (mainly Triassic and Jurassic) deposits which overspreads the rest of the county. But over the central levels and the coastal lowlands north of the Mendips these in their turn are buried beneath a sheet of alluvial deposits, which covers the former marshlands and sends tongues far inland up the river valleys. Elsewhere, where the Secondary strata are not covered by alluvium, we find that by reason of their prevailing southerly and easterly dip the older deposits are, broadly speaking, exposed nearest the coast and are replaced by progressively more and more recent rocks as we pass inland. For our purpose the most important, because the most extensive, are the Keuper or New Red Marls, the Lias and the Oolite. The former occur extensively in the more central part of North Somerset, in the Vale of Taunton and around the flanks of the Quantocks and Brendons, as also along the southern side of the Mendips, in the ' island ' of Wedmore and in various places between the Parret and the Poldens. The Lias appears in scattered outcrops in North Somerset, near Wedmore, on the coast of the Quantock country and elsewhere, and over a more extensive belt stretching from Shepton Mallet to the Blackdowns and sending out a long arm towards the sea which forms the Polden ridge. East and south-east of the Lias outcrop Oolitic formations are exposed in a roughly crescentic belt from Bath to Crewkerne (of which, however, a portion, round Sherborne, lies outside the county), and this in its turn is bounded by a narrow outcrop of Cornbrash separating it from the Oxford Clay, which, if we ignore insignificant strips of Gault, Greensand and Corallian, forms the eastern borders of the county from N.E. of Frome to S. of Templecombe. The Greensand

re-appears along the southern borders of the county, forming a more considerable area of elevated ground from the Blackdowns to near Crewkerne. The few other formations represented are too small in extent to be of any account for our purpose.

According to Moss in his valuable 'Geographical Distribution of Vegetation in Somerset' (13) the soils of the county are not as diversified as the variety of strata might lead one to expect. For ecological purposes he finds it sufficient to divide the county into areas of alluvium, sandstones, limestones, and deep marls and clays, and if this classification is found adequate for the purposes of a plant ecologist we might expect to find the same result even more apparent in connexion with the distribution of a member of the Animal Kingdom which is clearly less narrowly dependent on edaphic factors than are plants.

The sand and sandstone soils, then, occur on the Devonian of West Somerset, on the Greensand and on such limited areas elsewhere (*e.g.* the Old Red Sandstone on the Mendips and the Coal Measures) as can be disregarded for our purpose, while the limestone soils are coincident with the areas of Carboniferous Limestone already described, together with that of the Great Oolite south of Bath. On the remaining Oolite formations, according to Moss, deep marls and clays predominate, as they do on the Keuper, and these formations can therefore be treated as one for ecological purposes.

(*b*) ALTITUDE

The elevations of the different portions of the county are closely bound up with the geological formations.

The West Somerset Devonian is almost entirely above the 400 ft. contour and most of it much above this elevation, the top of the Quantocks and the greater part of Exmoor and the Brendons being, in fact, over 1000 ft. (highest point Dunkery Beacon—1707 ft.). The Carboniferous Limestone and the Greensand-Chalk region also rise in the main well above 400 ft., both the Mendips (maximum height 1067 ft.) and the district of the Blackdowns (maximum 970 ft.) comprising extensive

areas over 800. The alluvium naturally occupies the lowest levels, and the whole of Central Somerset is, of course, low-lying, while to the north of the Mendips and in East Somerset the country is more hilly. The great bulk of the area of the Keuper Marls and the Lias is under 400 ft. and much of it under 300. Only in the district between the Mendips and the Avon do these formations form any considerable extent of ground of more than 400 ft. elevation. The outcrop of the Oolite, on the other hand, is predominantly, though not entirely, over 300 ft., and largely over 400, while the belt of Oxford Clay is on the average a little lower than the adjacent Oolitic areas, though rising above 400 ft. where the ground slopes up to the Cretaceous escarpment on the county boundary.

(*c*) THE INFLUENCE OF GEOLOGICAL FORMATION AND ALTITUDE

These two factors are so closely interconnected in their influence that it is necessary to consider them together. Table III shows the number of rookeries and the approximate number of nests on the different geological formations as ascertained from the $\frac{1}{4}$-inch geological map. It should be noted that when a rookery lies very close to the boundary between two outcrops it is not always possible to be quite certain which formation it is on, but in any case this cannot be of any material consequence, since it is perfectly evident that the dependence on geological formation, if any, is not so rigid that it could possibly be held responsible for determining in such cases on which side of the boundary the selected trees are situated! Indeed, strictly speaking, it is only in the more central parts of fairly extensive areas on the same formation that differences in density are likely to be significant, for near the edges of any formation the density may well be influenced by the proximity of others of either better or worse food-producing qualities. But in considering a large area like a county there is a reasonable expectation that complicating factors such as these will to a great extent cancel out and that any marked differences in attractiveness of the different formations will be duly indicated by differences in the recorded density.

The figures provided in Table III have a certain interest in

themselves, but are of only rather limited utility as they stand, since clearly it is not the absolute, but the relative numbers that matter. It will be clear that to determine the latter the approximate areas covered by the different formations must be known. To calculate these directly from the map is rendered a hopeless task owing to the extreme irregularity and complexity of the outcrops. The method adopted, therefore, has been to paste an accurate coloured tracing of the $\frac{1}{4}$-inch geological map on Bristol board and then very carefully to cut out the various formations and weigh them exactly on a chemical balance. Having then determined the weight of a square of the same material equivalent to 1 square mile on the scale used and having the additional check that the total area of the map in square miles is known, it is comparatively simple to determine the requisite areas with a very fair degree of accuracy. These, together with the densities for each, are given for the principal formations in Table IV. The order in Table III is that of the geological succession ; in Table IV it is that of the density of Rook population.

TABLE III

NUMBERS OF ROOKERIES AND NESTS ON THE DIFFERENT GEOLOGICAL FORMATIONS

Formations	No. of rookeries on respective formations: wholly	in part	Approx. no. of nests on respective formations
1. Alluvium	79	5	2438
2. Chalk	3	–	324
3. Greensand and Gault	13	–	595
4. Corallian	—	1	21
5. Oxford Clay	15	2	499
6. Cornbrash	13	4	765
7. Oolite	81	3	4295
8. Lias	180	8	9598
9. Keuper Marls, Rhaetic and Dolomitic Conglomerate	169	8	10185
10. Keuper Sandstone	11	2	1216
11. Bunter Sandstone and Pebble Beds	5	–	546
12. Lower Red Marls	3	–	222
13. Breccias and Sandstones	5	–	334
14. Carboniferous Limestone	14	1	716
15. Coal Measures	2	1	182
16. Old Red Sandstone	3	–	69
17. Devonian	54	–	3629
[Uncertain	1	–	9]

TABLE IV

DENSITIES OF ROOK POPULATION ON THE PRINCIPAL GEOLOGICAL FORMATIONS

Formations	Approx. area in sq. miles	Approx. no. of nests	No. of nests per sq. mile
1. Over 100 sq. miles			
Keuper Marls, etc.	301·5	10185	33·8
Lias	335·0	9598	28·7
Oolite	183·5	4295	23·4
Devonian	293·0	3700	12·4
Alluvium	248·0	2438	9·8
2. Under 100 sq. miles			
Triassic and Permian Sandstones, etc.[1]	58·0	2318	40·0
Oxford Clay and Cornbrash	61·5	1264	20·6
Greensand and Chalk	52·0	919	17·7
Carboniferous Limestone	78·0	716	9·2
Coal Measures	21·0	182	8·7
Others	4·5	99	22·0

[1] Nos. 10–13 of Table III.

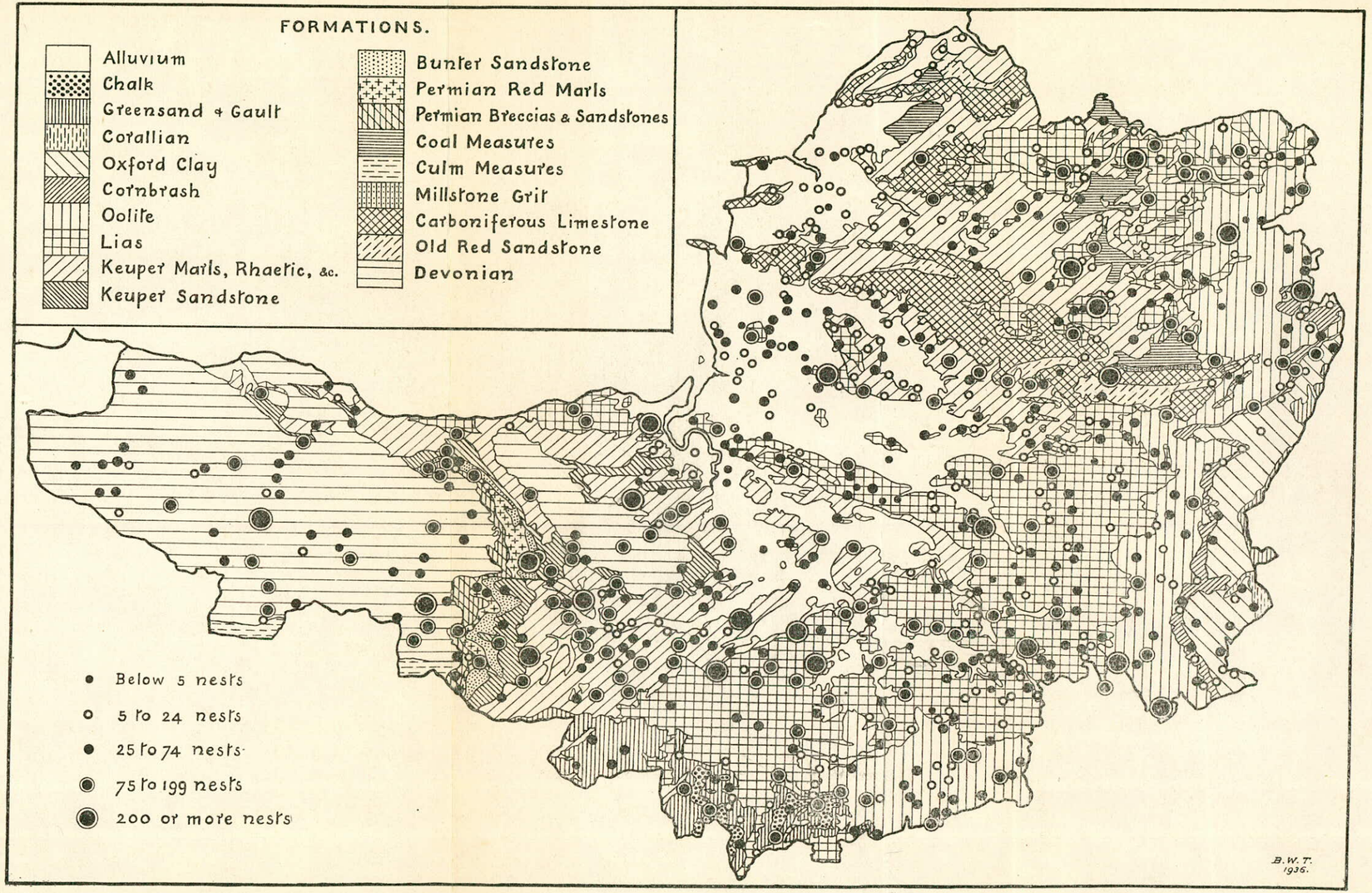
Before discussing these results the data for altitude will be given.

TABLE V

NUMBERS OF ROOKERIES AND NESTS AT DIFFERENT ALTITUDES

Altitudes	No. of rookeries within the ranges of altitude indicated		Approx. no. of nests
	wholly	in part	
Below 100 ft.	237	23	11052
100–199 ft.	116	34	7522
200–299 ft.	86	22	5962
300–399 ft.	59	18	3957
400–499 ft.	31	9	2117
500–599 ft.	26	3	1456
600–699 ft.	14	3	1319
700–799 ft.	13	3	783
800–899 ft.	6	4	350
900–999 ft.	7	1	308
1000–1099 ft.	5	—	406
1100–1199 ft.	4	—	189
1200–1299 ft.	4	—	131
1300–1399 ft.	2	—	91

Table V shows (with only one exception at a high elevation, where the numbers are small) a steady decrease in the number both of rookeries and of nests with every 100 ft. rise in altitude and not far short of one-third of the total number of nests are within the first hundred feet from sea-level. Allowance must of course be made for the fact that broadly speaking there is less ground at the higher than at lower levels and that the area



MAP OF SOMERSET ILLUSTRATING THE DISTRIBUTION OF ROOKERIES IN RELATION TO GEOLOGICAL FORMATIONS

of the county below the 100 ft. contour is much greater than that comprised within any other hundred foot range, but a genuinely high density at low levels (though not perhaps the very lowest—see below), beginning to fall off at a comparatively inconsiderable elevation, is easily demonstrable and indeed is fairly evident from observation.

The technique used in connexion with the geological formations has not been repeated here, mainly owing to considerations of time,[1] but the essential facts can be demonstrated by the cruder, though in this case probably adequate, method of adding together all the map squares falling within a given range of altitude and calculating the densities for these. The result is as follows :

TABLE VI

DENSITY OF ROOKS' NESTS IN MAP SQUARES AT DIFFERENT ALTITUDES

In map squares :	No. of nests per sq. mile	Area on which based (in sq. miles)
Under 200 ft.	24·2	342
Under 400 ft.	27·2	692
Partly over 400 ft.	20·9	478
Over 400 ft.	13·6	242
400—600 ft.	15·1	116
600—800 ft.	12·5	46
Over 800 ft.	11·1	80

It will be seen that the density for squares wholly above 400 ft. is very substantially lower than that for the squares wholly below this level, while the average for squares partly above and partly below is intermediate. If we abstract from the total on which the ' under 400 ft.' figure is based those squares which are wholly below 200 ft. and recalculate the density for these it is found to be less by an amount (3 per sq. mile) which, though not large, is probable significant. being due to the low density on the alluvium (*cf.* pp. 212 and 216).

It might be expected that the ' over 400 ' figure would be somewhat excessively depressed by the inclusion of the relatively very large area of bleak, high ground much above this elevation in the west and if the figures for from 400 to 600 ft. only are abstracted from this the result is certainly a little higher, but the difference is clearly unimportant, and it is

[1] The writer must confess to some difficulty in completing this account in time for publication in the present volume.

evident that even for the first couple of hundred feet above the 400 ft. contour the density is decidedly below that for lower levels. The figures for ' wholly above 600 ' and ' wholly above 800 ' are very possibly based on too small areas to be significant, but suggest as far as they go that from somewhere about 600 ft. upwards there is not much change in density.

Taking the altitude figures at their face value, therefore, and not taking account of geology, we appear to have good evidence of a quite definite decrease in numbers above about 400 ft. This is substantially in agreement with Alexander's findings near Oxford, though the actual densities which he found there were higher, the number of nests per square mile being 36 for the squares below 400 ft., 32 for those traversed by the 400 ft. contour and 22 for those above 400 ft. It should be observed that the area of the latter was small and the average elevation much less than in Somerset.

Turning now to geology, we find that the density is lowest on the alluvial flats, being lower here than even on the elevated Devonian uplands of the west, with their extensive tracts of moorland, which are more obviously inhospitable to Rooks. Of all the principal formations that of the Keuper or New Red Marls is easily the richest in Rook population, followed by the Lias and Oolite.

Moss's statement as to the ecological equivalence of the soils on the Lias, Keuper Marls and Oolite suggests that the difference in density on these formations may be more a question of altitude and cultivation than anything else. At any rate the lower density on the Oolite as compared with the New Red Marls may very well be at least partially explicable in this way. Throughout East Somerset the belt of Oolitic formations is largely above 400 and in part even above 500 ft. and is a somewhat bleak tract quite definitely poor in Rooks, with a density as low as about 14·7 per square mile. But at opposite ends of the Somerset Oolite outcrop, that is to say south of Bath and between Yeovil and Crewkerne, where lower ground is available, the density is of the same order as on the other formations, all the rookeries being either in or closely adjacent to river valleys or lowland areas under—and in the main well under—the 300 ft. contour. Nevertheless it seems

probable enough that apart from any question of elevation there may be real differences in attractiveness as a feeding ground for Rooks between different members of the 'deep marls and clays' of Moss's classification, between, for example, the rich pastures on the Red Marls and the heavy soil on the cold, stiff Oxford Clay, on which Alexander also found a rather low density near Oxford.

The low density on the Devonian is also probably due more to the indirect influence of the high average altitude and the prevalence of heather moors (*cf.* next section) than to any unfavourable qualities of the Devonian soils as such, for the density in map squares where the Devonian abuts on the Keuper Marls is high (28·6). On the other hand it is clear that altitude cannot be in any way responsible for the low figure on the alluvium, which must be supposed to be due to poor food-producing or other inimical qualities of the soil itself.

Of the less extensive formations the group of Triassic and Permian sandstones and associated deposits is remarkable for the high density which it shows. These form in the main a belt of from about 1 to 4 miles wide along the flanks of the Brendons, which supports several large rookeries. The area is not so small that the high figure is likely to be a mere accident and it is difficult to resist the conclusion that these formations must provide conditions rather notably attractive to Rooks. The Carboniferous Limestone forms, as already described, the Mendip upland and its outliers, characterized mainly by hill pasture with few trees. It is this character of the area in question that probably determines the scarcity of Rooks : in Derbyshire there are a number of quite large rookeries on the Carboniferous Limestone. The density on the Greensand and Chalk is fairly high considering that much of it is also hill pasture and heathland. Some further discussion will be found in the next section.

(*d*) THE CONDITION OF THE LAND AS THE MEDIUM THROUGH WHICH OTHER FACTORS OPERATE

The impression formed by the writer with regard to the influence of geology and altitude may be expressed by saying that neither of these factors as such counts for so much as the

general physiographical character of the country. This is of course primarily dependent on the geological formation, its history and physical properties—resistance to denudation and so on—and its average elevation is hardly more than another aspect of the same thing. These factors of physiography and altitude, together with soil, itself, even more directly, a product of the geological formation, combine to favour particular types of natural vegetation and the prevalence of varying forms of agricultural utilization of the land, which probably exert a more immediate effect than anything else on the local density of the Rook population.

The relatively soft New Red Marls and the Lias form predominantly lowland tracts of fertile pastures, often sprinkled with orchards, which support the densest Rook population in the county. The Oolite tends to form irregular uplands, rather bleak and less fertile than the vales of the Keuper and Lias, with a tendency to less hedgerow timber, and evidently less attractive to Rooks, though where it forms lower ground it supports as high a population as the other formations. There seems hardly any doubt that it is the general character of the higher parts, as just described, which makes for low density and not altitude in itself, since plenty of Rooks occur in certain localities on Exmoor and the Blackdowns at much more considerable elevations. The Mendips and the Blackdowns afford some points of contrast. The former have a poor thin soil, few trees and very few Rooks, and the density figure for the Carboniferous Limestone in the county is thus low. The limited area of Greensand and Chalk forms also elevated ground from about 400 ft. to over 1000 at the top of the Blackdowns, but in contrast to the Mendips has quite a substantial Rook population, which is not by any means entirely confined to the lower levels, though there are considerable rookless tracts of heathland. This suggests that these formations, though the heaths which occur on the Greensand are unsuitable for them, are in other ways rather attractive to Rooks. It may be noted that the density on the Chalk is high near Oxford and it is also very high on the Lincolnshire chalk wolds, but it must be observed that the outcrop of the Chalk in Somerset is much less in area than the Greensand and is unlikely to exert a significant effect.

Finally the hard Devonian rocks form high ground with scanty trees and a natural vegetation of hill pasture and heather moor. Here again it would seem to be the predominant character of the vegetation on the high ground that makes much of it unattractive to Rooks. We have seen that the density in the squares where the lower borders of the Devonian outcrop abut on the Keuper Marls does not suggest that the Devonian as such provides unsuitable conditions for the birds, and further to emphasize this conclusion it is only necessary to refer to the large rookeries at Dulverton (Nos. 183 and 186), Wadham's Copse (No. 190), Venne House (No. 178), Edbrooke (No. 172) and Dean Plantation (No. 158).[1]

The view that at any rate up to quite considerable elevations altitude as such is not a deterrent to Rooks also gains support from conditions on Exmoor. The big Venne House rookery of nearly 200 nests is actually situated at just over 1000 ft., and though the adjacent ground slopes down to the Haddeo Valley at about 600-800 ft., even this elevation is considerable. The altitude of the rookery at Dean Plantation (102 nests) is about 950 ft., the larger Edbrooke colony (200 nests) is situated at about 700 ft. in the Exe Valley, and that at Wadham's Copse (254 nests) is at about the same height. Other quite substantial colonies are at comparable and some at even higher elevations, *e.g.* that near Holcombe Farm (No. 180), with 90 nests in two groups at over 1100 ft., Brendonhill Farm (No. 160) with 69 at rather more than 1200 ft., and Wintershead Farm (No. 166) with 53 between 1300 and 1350 ft. The latter is only a few feet lower than the highest site in the county, Warren Farm (No. 147) with 38 nests at 1350 ft.

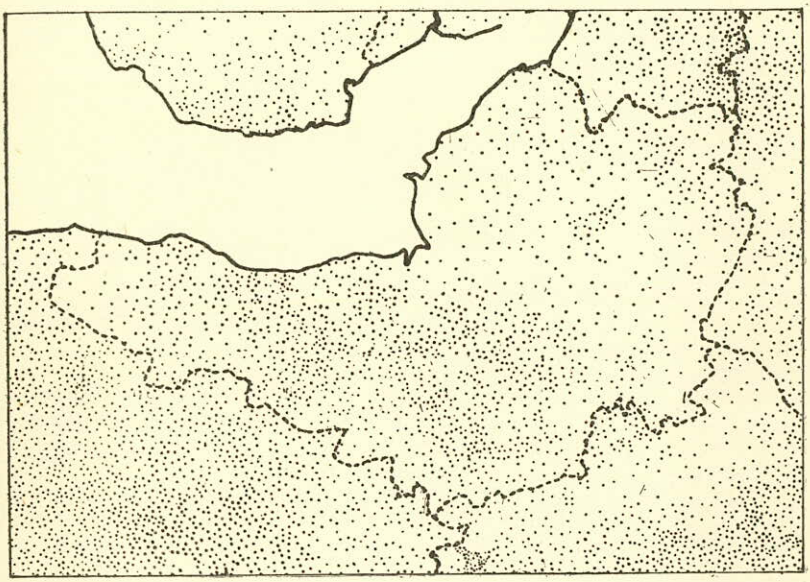
Conditions on Exmoor may be compared with those on the Carboniferous Limestone plateau of Derbyshire, where almost all the rookeries are between 1000 and 1200 ft. Roebuck shows that if the area of treeless grouse moors in this region is ex-

[1] It may be observed that Marples (10) in a series of observations made on a number of train journeys in England actually observed Rooks on a slightly higher percentage of fields on the Devonian than on any other formation, though his general conclusion was that geological formation is not of much importance. It is, however, doubtful in any case how far the figures which he obtained can be regarded as generally valid: they do not by any means coincide wiih the preferences observed in Somerset.

cluded the density of the remainder is the same as the average for the rest of the county, which, however, is itself low (*cf.* Table VIII). Roebuck believes that relative exposure is of no consequence at all, but in Somerset it is noticeable that in most areas except the levels there is an unmistakable tendency to occupy the lower in preference to the higher portions of the ground in any particular locality.[1] It seems possible that this is partly due simply to the lower ground tending on the average to be better timbered, and this view gains some support from such cases as Wheatsheaf Hill, Corton Denham (No. 639) and others, which suggest that where a good site is available on ground higher than that immediately adjacent Rooks are quite prepared to take it. It gains some support also from the fact that the area of lowland which is on the whole *not* well timbered, namely the levels, has a distinctly low density, which may possibly be partly a question of sites. At Lympsham, for example, where there are plenty of trees, there is a big rookery, but over large areas of the alluvial moors there are none and the concentration of nests on the Lias and Keuper 'islands' and the fringing lands of the levels is very noticeable. But shortage of sites can at best be only a partial explanation here, for some parts of the levels have ample trees for Rooks to breed in if they wished. A low Rook population seems to be a usual feature of land of this type. Yapp (23) found a low density on the alluvial flats of the Severn and there are practically no rookeries on the fenland of the Kesteven district of Lincolnshire (Roebuck). Probably poor feeding provided by peaty soils really counts for more than any shortage of sites, the scarcity of Rooks being particularly noticeable on the peaty areas. It is not impossible that the maintenance of the state of affairs described is in some measure 'traditional', the levels having been primitively treeless, but it is probable that if they

[1] Mr. K. W. Puddy was informed by the farmer owning the Bleadney rookery (No. 242) that this colony, which was situated in 1931 and 1933 halfway up the steep slope descending into the moor, changes its site in stormy springs. If, as during 1930 and 1932, the weather is very windy some of the Rooks go down into the moor and establish a temporary rookery, the abandoned nests of which were still to be seen in 1933. This interesting case of a varying site would be worth closer study, but the dependence of the movements on wind conditions needs confirmation.

were at all productive from the Rooks' point of view they would have been colonized by now. This is suggested by the fact that the only rookeries on the moors of the Wedmore district are close to some of the few houses or farms that exist there, around which the natural resources of the land are no doubt artificially augmented to the Rooks' advantage.



The Wessex Press, Taunton

Fig. 3. Map of Somerset to illustrate the Distribution of Arable Land. From 'An Agricultural Atlas of England and Wales' (2nd edit., revised), prepared by M. Messer. Reproduced with the sanction of the Controller of H.M. Stationery Office. Each dot represents 100 acres.

Somerset is a predominantly agricultural county and the bulk of the land is under permanent pasture. The present amount of arable land is low, the proportion of arable to the total area under crops and grass (19·2%) being the lowest for any county in southern England. Fig. 3 is a map reproduced from the 'Agricultural Atlas of England and Wales' (11) illustrating the distribution of arable land by means of the

relative density of dots, each dot representing 100 acres. It will be seen that north of a limit roughly defined by the line of the Poldens the density is decidedly lower than elsewhere, though becoming a little higher in the N.E. corner of the county and in a small patch on the Mendips. South and west of this rough line, though there are local variations, the average density of dots is decidedly higher. Comparison of Figs. 1 and 3 shows that although there is certainly not any clear-cut correlation (which would hardly be expected) there does seem to be some rough measure of agreement. At any rate the area of low density in Fig. 3 coincides roughly with an area of low average density of Rooks, in which there does seem to be a tendency to a rather higher population at about the same places where the dots become more numerous on the map, though there are local increases of density at some points—*e.g.* near Burnham and Weston—where there is no increase of arable land. Again the area of high Rook population, in which a series of squares covering the Vale of Taunton and the upper basins of the Isle and Parret and totalling 140 square miles have the very high average density of over 44 nests per square mile, is within, though admittedly it does not conform in detail to, the area of relatively high amount of arable. These considerations at least suggest, if they do no more, that the proportion of arable land, in conjunction with other factors, may have some influence on Rook numbers, though there is little reason to suppose that they are at all closely dependent on it.

Marples, in the paper (10) already quoted in the foot-note on p. 215, found that although much the largest absolute number of Rooks were seen feeding on grass fields, the percentage of such fields in which birds were noted (10·2) was less than the corresponding percentage of ploughed fields (14·2). It must be noted, however, that these observations were made outside the breeding season, and it is probable that at nesting time good grassland is really more important than arable as a source of food-supply.

(ii) MINOR FACTORS INFLUENCING CHOICE OF SITES

Apart from the major factors which control the broad variations in density of Rook numbers there are other minor ones which influence the choice of the actual sites of the rookeries. One of these is the vicinity of water. The view that the proximity of rivers should be accorded the status of a major factor influencing distribution has been sufficiently disproved in the Oxford district by Alexander, who demonstrated from the census figures that squares traversed by a river or stream are no more attractive to Rooks than those without.[1] The writer is in entire agreement with this conclusion and it seems unnecessary to labour the point.

Nevertheless there can be no doubt that where a stream or a pond is available the birds tend to build near it. Some attention was given to this matter in the Taunton district, which the writer surveyed himself. Of 78 sites for which particulars were kept 31 or about 40 per cent. were immediately adjacent to a pond, river or stream. A considerably higher proportion were within a few hundred yards of a pond or stream, but in the lowlands a high proportion of sites chosen at random or with reference to other factors than the proximity of water would be within a distance of that order from water of some sort. In a few cases in well-timbered private grounds one gained the impression that the quantity of suitable trees was probably the essential attraction and that the presence of a piece of ornamental water may have been from the point of view of the birds' choice merely an ' accident '. But in a large proportion of instances in open country the choice of a hedgerow by a horsepond or a spinney with a pond or stream in it in preference to adjacent sites away from the water appeared too deliberate to be dismissed as fortuitous, and this is true as a generalization for the whole area. The tendency to build near a stream where one is available may be largely due to the fact that the best grassland is probably near the stream, but this cannot account for the selection of a site immediately adjacent

[1] The high density on the practically streamless chalk wolds of Lincolnshire and the fact that in Notts. ' 60% of the Rook population is far removed from rivers ' (Roebuck) might also be cited.

to a horsepond. It is natural to infer from such cases that the birds like to have water to drink close at hand if they can get it, but accurate field observations bearing on this point seem to be lacking.

It also appears to be true that Rooks have a distinct predeliction for nesting close to buildings. Wynne (22) found that of 77 sites in the Isle of Wight only 11 or about 14 per cent. were not near buildings of some sort, and the rookeries which were close to buildings included about 87·6 per cent. of the total of nests. Yapp (23) in West Gloucestershire found the total of nests near buildings lower, but still considerable, namely 539, or about 53·4 per cent., out of 1009. Of these, 371 (*c.* 36·8%) were very close to human habitations and 168 (*c.* 16·7%) about 100 yards away.

In the present enquiry observers were not asked specifically to make observations on this point, but the situations of the rookeries are generally described with reference to buildings, where any exist. From the descriptions of sites in conjunction with the marks on the maps it is possible to ascertain reliably in the great majority of cases whether the rookeries are close to any building. On the other hand it is not possible to tell in many cases whether the nests are within 100 yards or not, and for present purposes ' near ' a building may be taken as meaning within about 200 yards, though in a very large number of cases the distance is much less.

Of 33,774 nests concerning which satisfactory particulars are available in this connexion 18,344 or approximately 54·3 per cent. are in sites near buildings. Actually the total should be if anything a little higher, since it is likely that in some few cases a cottage or barn or other small building not mentioned in describing the site has been missed on the map. We can take it, then, that well over 50 per cent. of the nests are close to buildings.

On the levels and still more on Exmoor, where trees are scarce, the tendency to nest near farms may be largely accounted for by the fact that a farm very often has a spinney or a windbreak planted near it, as well as by the better food supply around such settlements, and no doubt the well-timbered character of the grounds of so many country houses is sufficient

to account for the occupation of many such sites. But in quite a number of cases it is difficult to resist the impression that the birds have deliberately selected a site near a building, though others were available.

In any district, simply as a matter of chance, a good many nests will be near roads, but over most of the alluvial flats there is a very evident tendency for rookeries to be distributed along or very close to roads or lanes. The tendency for nests to be concentrated on the Red Marl and Lias 'islands' (*see* p. 216), which are all traversed by roads, is not what is here referred to. It is noticeable, for example, along the Bridgwater road over the 'South Marsh' and sundry lanes in the same district, on purely alluvial land. Its significance is not entirely clear, though perhaps a tendency to plant trees more freely in hedgerows along or close to the roads is sufficient to account for it. Roebuck observed a comparable state of affairs in the fenland of the Holland district of Lincolnshire.

(iii) SOME STATISTICS AND A COMPARISON WITH OTHER AREAS

TABLE VII

AGRICULTURAL AND OTHER STATISTICS.

Area of Somerset in square miles	1,636 sq. miles.
,, ,, ,, ,, acres	1,036,818 acres.
Total number of Rooks' nests	35,643
,, ,, ,, breeding Rooks	71,286
,, area under crops and grass	789,646 acres.
,, ,, of arable land	131,875 ,,
,, ,, under cereals	50,292 ,,
No. of nests per square mile	21·8

One nest to 22·2 acres of crops and grass.
,, ,, ,, 3·7 ,, ,, arable.
,, ,, ,, 18·5 ,, ,, grass.
,, ,, ,, 1·4 ,, ,, cereals.

TABLE VIII

COMPARISON WITH OTHER AREAS (partly after Alexander).

District	Date of survey	Area in sq. miles	Approx. no. of nests	Nests per sq. mile	Acres of crops & grass per nest	Authority
Holland ..	1924	12,760	31,000±	2·5±	—	Anon. (2)
Harrow ..	1928	50	84	2	—	Harrisson (8)
,, ..	1929	50	55	1	—	,,
,, ..	1930	78	361	5	—	,,
,, ..	1931	78	278	4	—	,,
North Wales ..	1920–7	*c.* 1,750	*c.* 8,000	5	84	Walton (19)
Aberystwyth ..	1913–16	*c.* 250	*c.* 1,550	6	56	,,
Nottinghamshire	1928	843	6,501	7·7	64·4	Roebuck (17)
Derbyshire ..	1929	1,009	10,620	10·5	42·4	,,
Lincolnshire .. (Holland)	1930	418	4,412	10·5	54	,,
Lincolnshire .. (Kesteven)	1930	726	8,432	11·6	48·4	,,
Leicestershire	1928	800	9,381	11·7	48·2	,,
Rutland ..	1928	152	2,340	15·4	37·6	,,
Dumfriesshire	1908	1,106	17,500+	16+	30	Gladstone (6)
,, ..	1921	1,106	16,000+	14+	—	,, (7)
W.Gloucestershire	1933	65.5	1,009	15·4	38·5	Yapp (23)
Midlothian ..	1928	366	5,820+	16+	—	Nash (15)
Lincolnshire .. (Lindsey)	1929	1,357	22,447	16·6	37·6	Roebuck (17)
Wirral Peninsula	1928–9	90	1,700	19	18	Marples (9)
Lanarkshire ..	1922	880	18,800	21	—	Stewart (18)
,,	1929	880	23,800	27	—	,,
Somerset ..	1933–4	1,636	35,714	21·8	22·2	Tucker
Isle of Wight	1932	146	4,200	29	15	Wynne (22)
Oxford ..	1928	224	6,750	30	—	Nicholson(16)
Edinburgh ..	1921	51	1,545	31	—	Evans (5)
,, ..	1928	51	2,280	46	—	Nash (15)
Upper Thames District	1931	910	30,500	33·5	15	Alexander (1)
Berwickshire ..	1887	464	21,000±	45±	—	Muirhead (14)

Table VI, in which the results published prior to May 1933 are quoted from a similar table published by Alexander, summarize the available data with regard to Rook densities, though, as that observer points out, not all of the figures are equally reliable. The table shows Somerset to have a moderately dense Rook population, which, however, is substantially below that of the other two regions in the south of England which are included, namely the Upper Thames basin and the Isle of Wight, and this notwithstanding that 140 sq. miles of country from the Vale of Taunton eastwards to beyond Langport and South Petherton has a density, which, if we exclude the rather rough figures for Berwickshire, is equal to that of

the densest area of comparable extent that has yet been surveyed, the Wallingford district of the Upper Thames.[1] If we exclude the part of the county included in Sheets 119 and 128 of the Ordnance map, which coincides very closely with Exmoor and the Brendons, a district clearly not comparable with the above mainly lowland regions, the density for the rest of the county will be found to be a trifle higher, namely about 23 nests, or 46 breeding birds, per square mile, but its place in the table is not altered.

Apart from the Exmoor region, the considerable ' rook-less ' areas of the Mendips and Quantocks and the low densities over much of the levels and of the central part of East Somerset help to depress the county figure. Whether the low amount of arable land in Somerset can be considered to have a major effect in this connexion seems very questionable, though no doubt it counts for something (*cf.* p. 218). Roebuck in his survey of the rookeries of the East Midlands (17) records the ratio of arable to grassland in each county and it seems to show no agreement with the county rook figures.

VII. Other Data

(i) the size of rookeries

TABLE IX

Classification of Rookeries by Size

Size	No. of rookeries	No. of nests comprised in rookeries of each size
1–9 nests . .	105	533
10–24 ,, . .	164	2775
25–49 ,, . .	154	5649
50–99 ,, . .	150	10390
100–199 ,, . .	73	9879
200–299 ,, . .	13	3094
300–399 ,, . .	6	1954
400–499 ,, . .	3	1369

The average size of a rookery works out at 53.4 nests. The average has generally been recorded in Rook census work and has a certain comparative value, since it serves to show whether the tendency is towards larger or smaller communities in one

[1] Here the density of 168 sq. miles is 43 per sq. mile as against rather more than 44 for the somewhat smaller Somerset area referred to above.

district as compared with another. But it should not be overlooked that the arithmetical average is a figure to which no single rookery need conform and it may by no means represent the *commonest size* for a rookery, which for practical purposes may be regarded as more significant. The table shows that commonest size in Somerset is between 10 and 24 nests, though when allowance is made for the rather smaller range of size of the 1–9 class, communities under 10 are seen to be practically as numerous, and it would perhaps be more satisfactory to say that the commonest size is under 25.

Comparisons with different districts must be made with caution owing to the varying views of writers as to what constitutes a rookery. The standard adopted in the present account is a moderately comprehensive one and it can be said that on the whole rookeries in Somerset tend to be rather small. This is not to say that there are not a fair number of colonies of considerable size, there being 13 over 200, 6 over 300, and 3 over 400, but there is nothing comparable to the colony in Great Copse, Chislehampton, near Oxford, with over 600 nests, and still less to the spectacularly large rookeries in parts of Scotland with over 1000 and even over 2000 nests.[1] These enormous Scottish communities are very remarkable and so far as the writer is aware no rookeries approaching these sizes exist south of the Border. They are possibly to be accounted for by a shortage of suitable sites in a hilly country, the nests being mainly concentrated in plantations in the valleys.

At the largest Somerset rookery, that at Hatch Beauchamp (No. 555), the 487 nests are distributed in several more or less well-defined groups (the bulk of them in plantations and shrubbery) in the grounds of Hatch Park and Hatch Court. That at Earnshill (No. 538—472 nests), only 4½ miles from the last, consisted in 1933 of 291 nests round a pond, and 149 more in a wood by Earnshill House somewhat over a quarter-of-a-mile away, with minor outlying groups. On a narrower

[1] In Lanarkshire alone Stewart (18) records colonies of 2025, 1749, 1718 and 1116 respectively in 1929 and in 1922 the first two were still larger, numbering 2684 and 2317 respectively. Gladstone (6) records several rookeries in Dumfriesshire varying from about 800 to 2,000, and colonies of comparable size elsewhere are mentioned by other writers on Scottish ornithology.

system of classification both these rookeries might be subdivided. The next largest colony, that at Hill Park, Otterhampton (No. 247—410 nests), is situated in a long covert and although falling into three main concentrations would be regarded as one rookery on any classification.

The colonies of between 300 and 400 nests are : Burton Pynsent (No. 363), Barford House (No. 288), Ston Easton Park (No. 129), Combe Hay (No. 108), Mark-Blackford (No. 221) and Road-Tellisford (No. 310). Burton Pynsent (364 nests) consists of three groups in trees close to Burton Pynsent House and the adjacent woodland overlooking West Sedgemoor. Barford House (325 nests) is a compact rookery in a strip of wood, and the Ston Easton colony (322 nests) is in groups for the most part close together in trees in Ston Easton Park or adjacent grounds. The Mark-Blackford community (316) is the only one over 300 which is in hedgerow trees and has already been discussed, while that at Combe Hay is another case which might be treated as two colonies, consisting of groups in woodland S.E. of Combe Hay (258 nests) and another smaller one at Combe Hay itself (59 nests).

(ii) SITES

In Table I (*cf.* p. 161) a rough classification of sites is attempted, the categories being :

A. Trees in hedgerows, windbreaks or avenues or on open parkland, fields or lawns.
B. Small compact clumps of trees.
C. Woods, copses, spinnies or shrubberies.
D. Isolated trees or groups of trees amongst buildings in towns (not in parks or gardens).

Obviously such a classification, without resort to individual description or a much more detailed subdivision of types, which are impracticable both on grounds of space and of lack of sufficiently exact details in a large proportion of cases, can only be rather rough and at times a little arbitrary, since the distinction between, say, a clump of trees and a very small spinney or between a very narrow spinney and a windbreak may be rather fine, but it serves to give some idea of the frequency of

the main types. Excluding a certain number of sites for which particulars are lacking or not altogether clear the figures for a total of 33,774 nests are :

A.16,460 B.790 C.16,485 D.39

Leaving aside categories B and D as unimportant we observe that the numbers in A and B are of the same order (no stress is laid on the curiously exact agreement, which is no doubt accidental), so that it seems fair to deduce that, as between more or less compact aggregations of trees and trees strung out in lines or separate, Rooks have no marked preference.

In Class C the preference is very strongly for quite small woods or spinnies. The only rookery in Somerset situated in any considerable tract of woodland is Brockley Combe (No. 15), and rookeries in even moderate-sized woods are rare. Where such sites are occupied the colony is practically invariably on the edge of the wood. I know of no exception to this rule in Somerset.

Somerset includes no really large or industrial towns. The largest town, Bath, " embosomed in surrounding hills ", to quote the unwontedly lyrical description from Kelly's Directory, is still so essentially rural, with feeding grounds for the birds so readily accessible, that it still supports several rookeries within the city boundaries. This is also true, if less notable, with regard to Taunton.

Perhaps the oddest site for a rookery is on Exmoor at Quarme Combe (No. 171), where the nests are in a beech hedge, consisting of a tangle of saplings about 25–35 feet high. A number of the nests were considered to be old and unoccupied in 1933, as though the birds were deserting, but the site is evidently one of long standing, as it is marked ' The Rookery ' on the 6–inch Ordnance map. But whether it was always in the beech hedge or perhaps was formerly in trees, which have been cut down, is not recorded. At Cornham Plantation (No. 152) also, 24 out of 52 nests were in a beech hedge in 1933. Here the trees in the plantation, in which there were 28 nests, are reported as being all dead, probably from fire. Whether the building of nests in the beech hedge is connected with this is not known.

Something has been said already in a previous section (pp. 219–21) with regard to factors—*e.g.* presence of water, buildings, etc.—which appear to have some influence in the selection of sites.

(iii) TREES

Excluding 1,103 nests at sites at which only the species of trees represented were recorded without giving the number of nests in each, the species of trees used and the number of nests recorded in each are shown below.

TABLE X

SPECIES OF TREES OCCUPIED AND NUMBER OF NESTS RECORDED IN EACH.

Elm	15864	Cedar	21
Oak	5119	Black Poplar	18
Beech	4777	Poplar sp.	18
Scots Pine	4520	Birch	17
Ash	1941	Spanish Chestnut	14
Sycamore	954	Alder	11
Horse Chestnut	316	Hornbeam	7
Lime	285	Field Maple	6
Holm Oak	167	Holly	5
Spruce	153	Austrian Pine	4
Pinus insignis	110	Silver Fir	4
Larch	39	Redwood	2
Douglas Fir	30	Hawthorn	1
Plane	30	Unspecified deciduous	34
Aspen	27	Unspecified conifers	21
Willow	25		

The table is in accordance with the findings of other observers, who have concluded that so long as trees are of a habit of growth such as will provide suitable lodgment for the nests, the choice of species depends primarily on their relative abundance. The elm,[1] the characteristic hedgerow tree of the south-west of England, contains more than three times the number in the next most favoured tree, the oak ; and elm, oak, beech, Scots pine and ash together have over 93 per cent. of the total.

Reference may be made to the considerable rookery at Kingston (No. 322) entirely in *Pinus insignis*, and to the smaller colony at Hinton House entirely in Douglas fir.

[1] A good many nests were noted in wych elms, but for present purposes these are not separated, as undoubtedly in many cases the two species were not distinguished.

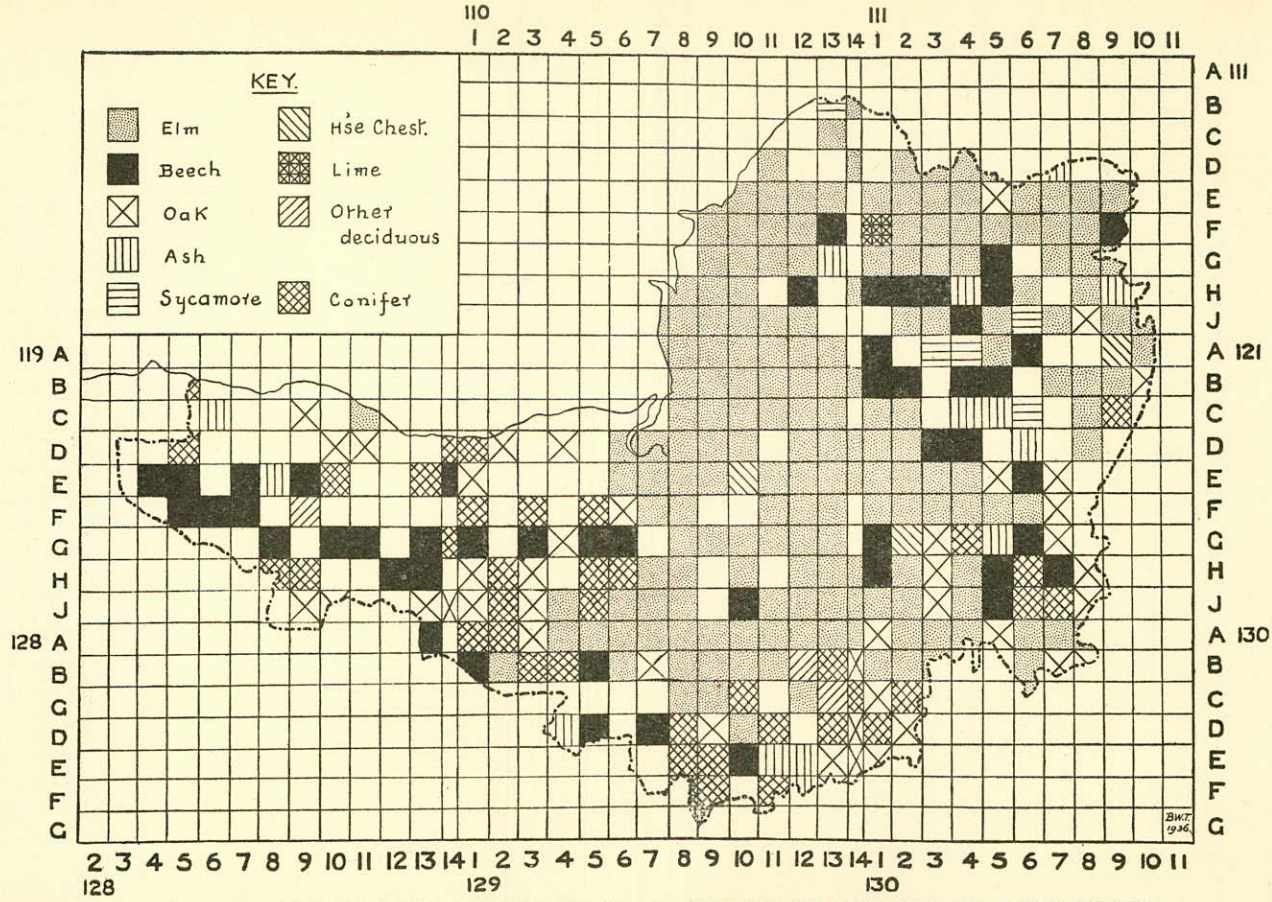


Fig. 4. MAP ILLUSTRATING PREVALENCE OF DIFFERENT SPECIES OF NEST TREES IN DIFFERENT PARTS OF SOMERSET

The squares are marked according to the species of tree containing the largest number of nests in each

Conditions in the county are graphically brought out in the map (Fig. 4), which shows by no means such a uniform prevalence of elm as the principal nest tree as might be anticipated if one considered only its immense preponderance in the totals. Actually, however, the facts are in close accordance with what a consideration of the topography of the county would lead one to expect, and in the main the map illustrates very well the dependence of the birds' choice of trees primarily on relative abundance. The elm is the typical tree of the low ground ; it becomes scarcer as soon as the land begins to become hilly and is rare or absent on the higher uplands. In the map the area of dominance of the elm as the principal (and over considerable tracts the only) nest tree will be found to define very accurately the area of the lowlands, and when we consider that the bulk of the Rook population is also concentrated in the lowlands it is less surprising to find the elm displaced by other species as the chief nest trees over so considerable a portion of the county as is in fact the case.

The high land of the Mendips and the hilly ground to the north are clearly marked on the map as an area in which beech becomes frequent, with ash and sycamore dominating several squares, while the hilly country of East and South Somerset is again indicated by the prevalence of beech, oak, ash, and, in the south, Scots pine. It may be remarked that throughout North, North-East and Central Somerset squares dominated by pine are entirely absent (and in fact over much of this area hardly any nests are built in this tree), but in the south and west they become frequent[1] and are not by any means confined to the higher ground. In these portions of the county small plantations and wind breaks of Scots pine are distinctly popular with Rooks, and although it is possible that they are rather commoner here than in other districts it is difficult, for once, to resist the impression that for some reason the Rooks here have a more definite liking for such sites than they have elsewhere.

In the Wiveliscombe-Milverton district and near Williton pine and oak displace elm as the most favoured trees even on

[1] The chief nest trees in the squares marked as "conifer" on the map are Scots pine in all cases except 120, H 5 (Pinus insignis), 121, C 9 (larch), 129, A 1 (spruce), and D 11 (Douglas fir).

fairly low ground, and over all the high ground of West Somerset the latter tree gives place to beech, Scots pine, oak and ash, 'elm squares' being, indeed entirely absent west of a line about three miles west of Taunton, except for one square higher up the Tone Valley and one covering the low ground adjacent to the coast at Minehead. On the highest ground beech is the tree chiefly occupied, with Scots pine coming second and ash in three squares; on the flanks of the moor oak is frequent.

(iv) NOTE ON THE LIMITATIONS OF THE ENQUIRY

It will be understood that the amount and nature of the volunteer help available and the writer's own limited leisure for field work in the county made it necessary to concentrate on the more immediately numerical aspect of the enquiry. It was evident from the beginning that various related problems, to which he would like to have given more attention had practical considerations permitted, would have to be frankly left aside or only touched on superficially in so far as more or less fragmentary data obtained incidentally might have some bearing on them. Consequently no attempt has been made to deal with such questions as the effects of shooting on rookeries, of competitive species, and others, which would clearly have to be considered in any complete study. Nevertheless the census provides the requisite basis for the filling in of these details of the picture if opportunity arises.

Probably the most important subject which is deliberately excluded here is that of the winter roosts, which form such an important feature of the Rook's social behaviour and which gather the tenants of a number of rookeries into communities of a higher order. In this connexion a certain amount of useful information was in fact collected, but it is far from complete, and it is not thought worth while to publish it at this stage, as the writer is hopeful of pursuing the subject further in the immediate future.

On the subject of competitive species, while recognizing the need for more exact investigation, we shall venture to record a general impression. The only other Corvidae which are

anywhere sufficiently numerous in our area to be possible competitors of the Rook are Jackdaws. It has been suggested that the local abundance of Jackdaws has a prejudicial effect on Rooks. In Somerset the writer has seen no evidence of this. Jackdaws, feeding far less on cultivated crops and decidedly more on insects than Rooks (*cf.* Collinge), may flourish in regions well provided with old timber where the general character of the land and its food resources are not attractive to Rooks. But where the ground is suitable for both there seems little evidence of mutual exclusiveness. In the Wivelis-combe-Bishop's Lydeard district, for example, where Jackdaws abound, Rooks are very fairly numerous.

Other possible competitors that have been mentioned are the Wood-Pigeon, Lapwing, Gulls, and the Starling, whose enormous increase in recent times Aplin has suggested may have led the Rook to change its diet. The influence of these (if any) is hard to assess without more data, but there seems to be widespread agreement that the Rook has very substantially increased in recent times, notwithstanding the increase of the Starling, which by sheer weight of numbers would seem the most likely of the species mentioned to exert some effect. It is improbable that the influence of Gulls is sufficiently general or constant in its incidence to count for much in Somerset and the Lapwing is hardly abundant enough to be important. The Wood-Pigeon is possibly more deserving of consideration in this connexion, but there are no obvious indications that competition with any species is of major importance as a limiting factor.

VIII. Non-breeding Birds

It will be obvious that the census figure does not, and is not intended to, give the total population of adult birds : it gives the approximate total of *breeding* birds. How closely this approximates to the total population of fully-grown birds in the nesting season depends on the number of non-breeding individuals. This is a subject on which available information is very much less adequate than could be desired. Birds in their first spring after hatching apparently do not normally breed. Witherby (21) found that all birds of this age examined

by him had the reproductive organs undeveloped. Roebuck (17) states that ' these young birds . . . do not breed, but congregate with the parent birds in the rookery ' and asserts that the number of such non-breeders ' varies in different rookeries. A well-shot rookery has few. The proportion appears to be highest in the small experimental rookeries which have only existed a year or so . . . ' It is difficult to know how much value to attach to a confident statement of this sort un-backed by any evidence.

Careful observations directed to this particular point ought to be undertaken. The Nicholsons found ' no reason to suspect that such birds (*i.e.* non-breeders) formed any considerable proportion of the spring population ', and the writer's general impression from a large amount of personal census work in Somerset is quite in accordance with theirs. Considerations of time made it impossible to undertake detailed observations, but in general there seemed to be little evidence of any noticeable number of non-nesting birds hanging about the rookeries. Certainly he would have estimated the proportion of such birds at a considerably lower figure than might be anticipated on the assumption which Witherby's observations seem to render practically inescapable, that it is only exceptional for birds in their first spring to breed.

Observations made in connexion with the Oxford investigations and others quoted by R. H. Brown (3) seem to warrant the conclusion that on an average two young are fledged from each nest. The number of young is further reduced by mortality after fledging, and Alexander concludes that by the winter the proportion of young to adults has sunk to about 1 to 4. If the population is stable one out of every such five birds must, as he points out, come to grief before the breeding season. Now if we accept the above conclusions as to the winter ratio of young to old birds as roughly valid and if we assume that by the time the young are about 8 months old the mortality amongst them is about the same as in the adults, which may or may not be strictly so, then the proportion when the breeding season comes round should be still about the same. That is, the number of non-breeding birds should be of the order of 25 per cent. of that of the adults. Actually the

writer finds it very difficult to believe that the number is as high as this, and it seems probable that either more young birds breed in their first year than the evidence suggests or—which is perhaps more likely—that other factors combine to produce a smaller non-breeding population than is indicated by the above calculation, which admittedly entails several assumptions which may stand in need of modification.

In discussing the effect of the Rook upon agriculture in the Oxford district the Nicholsons, acting on what they would probably not wish to be regarded as more than a reasonable guess, allowed for a number of non-breeding birds amounting to roughly 11 per cent. of the number of adults, and this is much more the order of numbers which the writer's impressions, as far as they go, would lead him to expect. At any rate, pending a proper investigation of the problem, it seems safe to regard 25 per cent. as an absolute maximum figure in any calculations requiring an allowance for non-breeding birds (*cf.* next section), and we may venture the opinion that when the much needed investigation has been made the figure will prove to be between 10 and 20 per cent.[1]

IX. The Rook and Agriculture

The Somerset rookery investigation was undertaken primarily with a view to its biological interest. Nevertheless, such enquiries, as emphasized in the introduction, have also a very real economic importance, since the accumulation of such

[1] Some definite observations on the proportion of young birds in flocks are contained in a valuable paper by J. P. Burkitt (25), overlooked when the above was written. Observations extending over four years led to the conclusion that out of a rookery of 54 nests the young are reduced by the winter to, at the very most, 26 individuals. This agrees well with the above estimate of 1 young to 4 adults, but from observations in the fields the author is led to suggest that only half of the 26 are young of the year and that the others are older non-breeders. He concluded at first that the average number of young 'to be seen anywhere towards winter was 1 in 10 or even 1 in 20,' a proportion which he admits seems excessively low. Some later observations, when much higher proportions of young were observed, suggest that they tend to form parties which may wander into districts far away from rookeries. This may help to account for the very low figures just quoted and seems to point to a provisional conclusion not inconsistent with the figures suggested above.

statistics as are here provided is an essential preliminary to any reliable assessment of the Rook's effect on agriculture. It is no part of the writer's intention, at any rate on the present occasion, to enter into a detailed discussion of this complex subject, but the general conclusions indicated will be briefly reviewed.

Collinge (4) from an examination of the stomach contents of over 1000 Rooks states that 35·1 per cent. of the food of the Rook consists of cereals, 13·4 per cent. of potatoes and roots and 23·9 per cent. of insects and other invertebrates which he regards as injurious. From careful calculations he estimates that a single Rook eats approximately 52 lbs. of food in a year, and on this basis it will consume approximately 18·3 lbs. of cereals, 7 lbs. of potatoes and roots and 12·4 lbs. of noxious insects. Collinge takes the view that the Rook has increased too much and in consequence has taken to feeding on cultivated crops to a greater extent than formerly. He thinks that it is at present injurious by reason of these excessive numbers, and that if the numbers were reduced the percentage of cereals, etc., consumed would decrease to a level at which the damage would be outweighed by the number of injurious insects, snails, etc., destroyed.

The upshot of census work, however, has been to show that on Collinge's own figures, even under present conditions, the numbers of Rooks are nowhere sufficient to exert an appreciable effect on the agriculture of the country, or of any considerable district, as a whole.

Admittedly, in individual cases, the descent of a flock of Rooks on, for example, a field of young roots or newly sown corn, may result in serious damage, and the farmer who suffers in this way can hardly be expected to consider it of no account, but if we consider a wider area it is clear that the amount of agricultural produce destroyed is so small a percentage of the whole that it is hardly possible to regard the depredations of Rooks as a matter for any general concern.

On the general aspect of the subject we can add little to the Nicholsons' conclusions, but as the present paper may come into the hands of local landowners and others in the county who do not see the regular zoological journals, no apology will

be made for quoting *in extenso* what these writers have to say on the matter, before proceeding to consider the result of a comparable treatment of our own area.

After justly observing that ' owing to the complexity of the food-chain involved in calculating the indirect influence exerted through the consumption of noxious insects, it will be a matter of much time and difficulty before all the main results can be followed out ' they proceed :

' The direct influence, which consists mainly in the destruction of crops is more easily estimated. Thus, if (allowing a small number of non-breeding birds) we assume that there are 15,000 rooks upon our 143,360 acres, and that about 30,000 acres of this are under cereals, taking an average of the winter and spring sowings as about 2½ bushels per acre, then there will be sown on that acreage 75,000 bushels of seed and (on the basis of Dr. Collinge's figures) about 4,264 bushels will be consumed by the rooks in the course of a year. If, then, the whole toll were levied at sowing-time it would amount to no more than 5·6 per cent. of the amount laid down, and only a very unequal incidence could produce any appreciable effect on the ultimate crop. If on the other hand it were levied at harvest it would come out of a total yield (at 40 bushels) of 75 million bushels, and so affect under 0·04 per cent. of the crop. In practice, clearly grain consumption must take place at both these seasons, and perhaps intermediately ; the exact proportions are ascertainable by analysis of stomach contents. *Prima facie*, therefore, there seems no reason to suppose that the depredations of the Rook on cereal crops in the Oxford area are anything but a negligible factor, since even if such a number of rooks ate nothing else but corn all the year round, taking the consumption as 1 lb. per bird per week (on Dr. Collinge's authority) the destruction could not be very great in proportion to the quantity grown.'

In round figures the census gives the population of breeding Rooks in Somerset as about 71,400, and we have seen that the non-breeding population is probably somewhere between 10 and 25 per cent. of this number (*i.e.* between 7,140 and 17,850). This gives (again in round figures) a total population of full-grown birds between 78,500 and 89,200, the real figure being probably nearer the former (*cf.* previous section). On Collinge's figures 78,500 birds must be supposed to consume approximately 22,802 bushels of grain in a year (reckoning 63 lbs. to the bushel) and 89,200 birds would consume 25,910 bushels. This would be distributed over 50,300 acres of ground in the

county under cereals or, if we adopt the Nicholsons' average of summer and winter sowings, over a sowing of 125,750 bushels. If all the grain were eaten at sowing time this would mean a toll of between 18 and 20 per cent., but, still following the argument quoted from the Nicholsons, it is evident that it is *not* all taken at sowing, but some of it at harvest, and consequently the real percentage of the crop consumed is considerably less. All the same, comparing the Oxford and Somerset figures it is noticeable that if we take them at their face value the consumption of grain in Somerset is relatively a good deal higher. It should not, however, be hurriedly assumed that this is really the case. The difference in the figures is mainly due to the relatively much smaller amount of grain grown in Somerset. But Rooks eat various other foods besides grain, and there is good reason for believing that the proportions of each class of food taken depend largely on availability. Collinge's figures are only an average, and there is no reason to suppose that where the amount of land under cereals is low, as in Somerset, all the Rooks crowd into the little there is so as to consume the same amount of grain per head as they do in areas where it is grown in quantity. They almost certainly feed more on other types of ground. Consequently although the toll *is* perhaps rather heavier in Somerset than in areas like the Oxford district it is almost certainly less so than the figures quoted might suggest. In fact, there seems little ground for supposing that the Rook can be regarded as a serious factor in agriculture in Somerset any more than in other areas which have been similarly studied.

X. Acknowledgments, Etc.

The work of the 1933–4 census was distributed amongst the various observers as follows (B.S.=Boy Scouts) :

Sheet 110. Clevedon and district B.S. *per* E. Haines* : B. 12–14, C. 11–14, D, E. 10–14, F. 13–14. B.W.T. : E. 8–9, F. 8–12, G. 11–14, H. 12. H. Cox* : G. 8–9, H. 7–8. The late W. D. Miller* : H. 9, J. 7–8. S. I. Quick : G, H. 10. 1st Cheddar B.S.* : H, J. 13–14. K. W. Puddy : J. 10. D. W. Grubb : J. 11. 1st Axbridge B.S. *per* W. F. Brook : J. 12.

Sheet 111. Clevedon and district B.S. *per* E. Haines : B, C, D. 1. Bristol B.S. *per* F. W. Crease : C, D. 2, E. 1–2. Keynsham and district B.S. *per* V. T. Turner : D, E. 3–6, F. 5–6. Bath and district B.S. *per* S. Lee Bush : D, E, F. 7, G. 7–8. B.W.T., assisted by W. B. Alexander and H. J. R. Pease : D, E. 8–10, F. 1–4, 8–9, G. 2–3, 5–6, 9, H. 2, 5–10, J. 2–3, 5–10. L. A. Hawkins* : G, H, J. 1. 1st Clutton B.S. *per* C. E. Mansfield : G. 4, H. 3–4. Rev. R. J. Stonor : J. 4.

Sheet 119. 1st Porlock Weir B.S. *per* H. G. Fitness* : B. 5. C, D. 5–6. 1st Alcombe Rover S.* : C, E, F. 11–12. Knowle, Timberscombe B.S.,* with assistance from the Rev. C. J. Pring : D, E, F. 8–10. G. Harvey and L. Sully : D. 11–12. 1st Williton B.S.* : D, E. 14. H. S. Walker : E. 4–5, F. 5–6, G. 13–14. Rev. C. J. Pring : E. 7. B.W.T., assisted by H. J. R. Pease : E. 14. B.W.T. assisted by W. B. Alexander : H, J. 12–14. Dulverton B.S.* : G. H. 7–11, J. 9–11.

Sheet 120. The late W. D. Miller* : A, B. 7–9, C. 8–9. Wedmore B.S. *per* K. W. Puddy* : A. 10–11, B, C. 10–13. 1st Axbridge B.S. *per* W. F. Brook : A. 12. 1st Westbury B.S. : A. 13–14. B, C. 14. B.W.T., assisted by H. J. R. Pease : C, D. 2–3, D. 7–8 (parts), E. 1 (part), 3–5, E. 8 (part), F. 1–5, F. 6–7 (parts), F. 8–9, G. 9 (part). Scout-Master E. J. Blunden : C, D. 4, (with H. Wheddon), C. 5. H. Wheddon and B.W.T. : C. 6–7, D. 5–6 (part). 1st Williton B.S.* : D. 1, E. 1 (part). A. Quicke and 2nd Bridgwater Rovers : D. 6 (part). M. Farrance : D. 7 (part). 1st Puriton Girl Guides : D. 7–8 (parts). 3rd Bridgwater B.S. *per* D. Scott and R. K. Lean : D. 8 (part), E. 8–9 (parts), G. 9 (part). H. Darch : D. 9. Miss T. E. Clark : D, E, F. 10. L. A. Hawkins : D, E, F. 11. B.W.T., assisted by W. B. Alexander : D. 12–14, G. 1–5, H, J. 3–9. Roadwater Land Rover Patrol* : E. 2. 2nd Bridgwater Rovers : E. 6. Miss Beaumond : E. 7. Miss V. Goodwin : E. 9 (part). R. Ribbons : E, F. 12–13. Mrs. C. Dowell* : E. 14. R. G. Seymour and W. Thomas : F. 6 (part), G. 6. 2nd Bridgwater B.S. : F. 7 (part). Street Rovers : F. 14. V. Betty : G. 7–8. W. B. C. Paynter* : G, H, J. 10–14. S. G. Williams* : H, J. 1–2.

Sheet 121. 1st Chewton Mendip B.S. *per* C. E. Mansfield : A. 1–3. Rev. T. P. Worsley-Worswick : A. 4, A. 6 (part), B. 4–6. Rev. R. J. Stonor* : A. 5, A. 6 (part). Frome district B.S. *per* D. J. Moran, and B.W.T. A. 7–9, A. 10 (part), B. 7, B. 9–10 (parts), C. 7–9. B.W.T., assisted by H. J. R. Pease : A, 10 (part), B. 8, B. 9–10 (parts). S. E. Balch and T. Baker : B. 1. T. Baker and R. J. Housden : B. 2, E. 3 (part). C. W. Harris* : B. 3. B.W.T. : C. 2–5, D. 2–3, E. 1 (part), E. 2, E. 3 (part), F. 1, G. 1–2, G. 3 (part), H. 8, J. 2 (part), J. 3–4, J. 8. S.E. Balch : C. 2 (part). D. D. Richardson* and S. T. Meares : D, E, G. 4–9, F. 4–8. C. G. Hill : E. 1 (part). 3rd Street Rovers : F. 2. Miss C. Freeman* : H. 1–2,

J. 1, J. 2 (part). J. Everidge* : H. 4, J. 5. 1st Bruton and 1st Castle Cary B.S. : H. 5. N. Cadbury B.S. *per* Rev. R. Moline : H. 6–7. Charlton Horethorne B.S. : J. 6–7.

Sheet 128. S. G. Williams : A, B. 13–14.

Sheet 129. S. G. Williams* : A, C. 1–3, B. 1. B.W.T., assisted by W. B. Alexander : A, B, C, D. 4–9. B.W.T. D. 10 (part), D. 12–13. W. B. C. Paynter* : A, B, C. 10–14, D, E, F. 14. J. Homfray : B. 2–3. Rev. F. W. Cleverdon : D. 10 (part). Hinton St. George Estate Office (by permission of the Rt. Hon. the Earl Poulett), and B.W.T. : D. 11. J. J. Parkhouse : E. 6–10, F. 7–10, G. 8–11. Dr. H. B. Elton : E. 11–12, E. 13 (part), F. 11–13. P. G. H., L. H. and B. H. Way : E. 13 (part).

Sheet 130. J. Chainey : A. 1, A. 2 (part), B. 1–3, C, D. 1–3. B.W.T., assisted by W. B. Alexander : A. 2 (part), A. 3–8, B. 4–8. W. B. C. Paynter : E. 1.

In addition to those whose names appear above as having actually taken part in the census the names of Lady Constance Ryder and Mr. W. H. Philips should be mentioned as having been responsible for the organization of the Scouts in the Exmoor and Bridgwater districts respectively. Those whose names are marked with an asterisk also co-operated in the preliminary work in 1931, in which R. J. Clough, N. G. Hadden, E. R. Hall, E. W. Hendy, Miss Joan Lewis, A. E. Mead, P. C. Rolls, Sidcot School and 1st Watchet Sea Scouts also assisted, while E. W. Harris, L. A. Hawkins and the Rev. C. J. Pring, whose names also appear above, surveyed other districts in 1931.

To all who helped in the census the writer wishes to express his most grateful thanks for their co-operation, coupled with his apologies for the delay in the publication of the results of their labours, which more urgent duties rendered unavoidable. The invaluable help of Mr. Arthur Pryor in organizing the Scouts has already been acknowledged in the introduction. Thanks are also tendered to the many owners who allowed rookeries on their property to be investigated, and a grant from the Christopher Welch Fund at Oxford, to cover cost of maps and printing of schedules and instructions, is gratefully acknowledged.

Finally the writer desires to express his lively appreciation of the patience and consideration shown him by Mr. St. George Gray and the Editorial Committee, when it proved impossible to complete the manuscript by the date when it should properly have been sent in.

XI. Bibliography

[No. 19 is quoted from Alexander in Table VIII, but is not otherwise referred to and has not been examined directly.]

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ADDENDUM

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XII. Addenda and Corrigenda

Since going to press, two small rookeries, known to have been in existence in 1933, have been brought to notice, of which the particulars are as follows :

119, F9. On hill ¼ mile N.W. of Coppleham Cross. B. 16 nests in beech, Mar. 25, 1936.

129, D10. Copse W. of Dowlish Wake Church. C. *c.* 11 nests in 1933. Increased to 49 on Mar. 26, 1936, when all but 8 (oak : 7, ash : 1) were in larches. With the exception of Blatchbridge (No. 417) this is the only rookery recorded in the county which is predominantly in larches.

These two sites are marked on the large rookery maps, but not on the geological map.

Owing to errors in recording which have been corrected in the text, but were detected too late for alterations to be made to the maps in Figs. 1–3, square 119 F7 in Figs. 1 and 3 should be blank, and 119 F9 in Fig. 3 should be marked as 'ash' instead of 'other deciduous'.

In *British Birds* for April 1936 (vol. xxix, pp. 334–7) a further important paper by Mr. J. P. Burkitt has appeared entitled 'Young Rooks, survival and habits'. Mr. Burkitt's observations, though admittedly based mainly on one limited area, constitute the most valuable and precise contribution to the 'Young Rook Problem' (*cf.* pp. 231–3) yet published. It must suffice to say here that this author's very careful observations lead him to place the number of young Rooks surviving in the winter as low as about 10% of that of the adults (at most one-seventh or about 14% and quite certainly less than one-fifth or 20%) and that this figure seems to be reached as early as August. The number surviving at the end of June, which he previously 'tendered with great suspicion' as about 2·3 per nest he now puts as low as 1·5 to 1·2 per nest. But as even these figures are equivalent to 60–75% of the adults it seems clear that from causes still in the main unexplained an extremely heavy mortality must take place amongst the young in the months of July and August.

On the basis of Mr. Burkitt's conclusions it appears that the minimum figure suggested for non-breeding birds on pp. 233 and 235 can be adopted as approximately correct.