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ITE has administrative headquarters north and south, and the geographical distribution of its 250 staff in six Research Stations throughout Britain allows efficient use of resources for regional studies and provides an understanding of local ecological and land use characteristics.

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INSTITUTE OF TERRESTRIAL ECOLOGY
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COUNTRYSIDE SURVEY 1990

Establishing a baseline of vegetation data
from sample quadrats placed in 1 km squares
to be surveyed as part of the "Countryside
Survey 1990"

First progress report

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March 1991



COUNTRYSIDE SURVEY 1990

Report to NCC of progress at 5 March 1991

1. This paper summarises progress since the start of the Countryside Survey 1990 with special reference to parts of the project funded by the NCC. The paper has been prepared at short notice and some figures given in the paper and its Annexes may be provisional. All information is provided in good faith and is a best estimate of the current status of the project.

Background

2. The background to the Countryside Survey 1990 project is summarised in the NCC/ITE Contract [given here in Annex A].
3. The methods employed during the survey are based on those used previously in surveys conducted by ITE and aspects concerned with vegetation recording are given in Annex B to this paper.
4. Aspects of quality control and quality assurance are presented in Annex C.

Planning and Training

Tasks:

5. Planning for the survey started in October 1989 and involved discussions with all Government Agencies and many Departments. Discussions on funding took place between ITE and DOE in the second half of 1989, and between ITE and NCC during early 1990.
6. A field handbook of methods was drafted in April/May 1990 and was revised during the course of the Field Training Course for surveyors.
7. A two-week Field Training Course was held in late May [further details are given in Annex C].

Outputs:

Field methods manual

8. The fourth draft of the Field Handbook (which includes details of methods and definitions of data categories) has been produced and is available for information and comment.

Field Survey

Tasks:

9. The total number of squares which have been surveyed is 533 (508 squares in predominantly rural locations and 25 urban squares). The survey took place between June and October 1990.

10. A preliminary search of the data sheets indicates that species were recorded in 11,484 plots as part of the survey, of which 6,728 were surveyed as a direct result of NCC support.
11. Annex D is a table showing a preliminary estimate of the number of plots which were recorded in each square. It can be summarised as follows:

Plot type	Potential per square	Potential overall	Surveyed	% of overall potential
X (200m ²) (random)	5	2540	2523	99.3
* Y (4m ²) (semi-natural)	5	2540	2478	97.6
* B (10x1m) (field edges)	5	2540	1816	71.5
H (10x1m) (hedges)	2	1016	576	56.7
S (10x1m) (waterside)	2	1016	875	86.1
* W (10x1m) (waterside)	3	1524	1275	83.7
R (10x1m) (roadside)	2	1016	782	77.0
* V (10x1m) (roadside)	3	1524	1159	76.0
<hr/>				
Total	27	13716	11484	83.7
* NCC funded	16	8128	6728	82.8

12. The number of surveyed squares may not match the potential in the following circumstances:
- where most of the square has become built up
 - where no semi-natural habitats occur (Y plots)
 - where no field edges occur (B plots)
 - where no linear features exist (H, S, W, R V plots)

Quality Assurance

13. A quality assurance exercise was undertaken during October and November 1990, involving a repeat survey of sites. It had been intended to visit 30 sites, but adverse weather conditions (including lying snow in Scotland) meant that 21 sites only were visited. The re-survey was carried out by project management staff (Dr Bob Bunce with other staff) and by consultants (Bangor Ecological Consultants).
14. At each site, a grid of 9 points was superimposed over one quarter of the square. At each point the land cover was coded for the mappable unit in which the point lay. The characteristics for the nearest boundary to each point (if within 100 metres) were coded. The coding procedure was identical to that used in the main survey.
15. Where present, one of each type of vegetation plot was located and a species list made.

16. An initial analysis, concentrating on any differences between data recorded during the main survey and those recorded as part of the QA exercise, and the reasons for these, is being completed by Dr Ian Taylor (consultant).

Outputs:

Documentation

17. All Field Assessment Books (FABs) have been returned to Merlewood. Each FAB has been checked on return for completeness.

Data preparation and storage

Tasks:

Define format for database

18. Details of data format, and the use of an Oracle Database Management System and ARC/Info Geographical Information System, to standardise the format and application of the data, have been developed.

Data checking

19. The numeric code information on all c. 2,500 map pages in the FABs has been checked for legibility and consistency, and especially to standardise plant species nomenclature.
20. All c.12,000 vegetation recording sheets have been checked for legibility and consistency. In addition, an initial check has been made on the likelihood of certain species combinations being present. Dubious records were found in less than 4% of the vegetation plots and these will be flagged in the data base.
21. As an independent way of checking the accuracy of species records, the species records from the Countryside Survey 1990 are to be tested against the data base of the Biological Records Centre (BRC) at ITE Monks Wood. A feasibility study is under way and a test set of data, comprising records of five species from c. 40 squares, has been supplied to the BRC.

Data punching

22. The punching of the species data is under way. It is intended that all code data punching will be completed by March 1991.

Document and archive original field sheets

23. All FABs are being stored in a fire-resistant room and microfilming of all data sheets is to be carried out as FABs become available from other activities.

Outputs:

Revised species list

24. As a result of the checking of the vegetation data, a new master species list has been generated. The species list is held on computer (both Latin names and English equivalents) and runs to 1,290 records.

Sample outputs

25. The format of outputs has been discussed.

Data analysis and interpretation.

26. Discussion and some early conclusions on the way data might be interpreted, and limits to their use, has taken place as part of a two-day 'Wash-up' meeting of ITE Survey Coordinators, held on 3/4 December 1990. A document is being prepared which gives the recommendations of the meeting for future surveys, and highlights areas which need consideration before any other similar surveys are carried out.

Synthesis and Report Production

27. A draft structure for the final report is being discussed.

ITE

5 March 1991

Annex A

Description of programme of work as given in Annex A
of contract between NCC and ITE.

[Annex A of contract between NCC and ITE]

Establishing a baseline of vegetation data from sample quadrats placed in 1km squares to be surveyed as part of the 'Countryside Survey 1990'

1 Introduction

The 'Countryside Survey 1990', being undertaken by the Institute of Terrestrial Ecology (ITE), is a large programme to survey 512 1km squares throughout Great Britain. These are distributed between the 32 categories recognised in the ITE Land Classification, developed by Dr R Bunce of ITE Merlewood. The 1990 survey, which is largely funded by DOE and NERC, focusses on detailed recording of natural and man-made features within each of the sample squares, using standardised procedures. However, there is limited capacity within the main survey programme to record details of the areas of semi-natural vegetation remaining within each sample square.

The Nature Conservancy Council (NCC) has initiated the Great Britain Nature Conservation Resource Survey (GBNCRS) in 1990 to identify what is known, and what still needs to be known, about the extent and quality of the wildlife and earth science resources in GB. An important part of the programme is to establish baseline information against which future changes in the nature conservation resource can be assessed. It is necessary to develop a framework within which information on the wider environment can be collected in future. The ITE Land Classification provides such a framework and has been selected to integrate future habitat and species surveys within the wider environment in GB.

The vegetation data to be recorded in the 1990 survey, within permanently marked quadrats, will form an extensive series of samples (c. 7,000 points) which are representative of the quality and composition of areas of semi-natural vegetation within the 512 sample squares. When resurveyed, any changes in these quadrats will give a robust assessment of the extent and kind of changes taking place throughout GB.

This contract details the NCC-funded element of the survey programme, reports and other contract outputs to be produced for NCC by ITE under the GBNCRS commissioned programme.

2 Field Survey Programme

2.1 As part of the DOE/NERC funded work, the ITE survey teams will record, in each of the 512 squares:

- a) Five 200m² quadrats, placed according to a dispersed random location scheme
- b) Up to six linear (1m x 10m) plots, two each adjacent to roads, hedges and waterways, where present

2.2 Under the NCC funded programme, the survey teams will undertake the recording of additional vegetation quadrats in the 512 1km sample squares as follows:

a) Five 2m x 2m quadrats to be placed in semi-natural vegetation types; the quadrats to be placed in five different land cover types (additional to those types already represented by the five large quadrats in the main survey programme); if the total number of land cover types exceeds, or is less than, five, then random numbers to be used to allocate five types for sampling.

b) Up to five linear (1m x 10m) plots to be placed in a field boundary adjacent to the 200m² quadrats, according to objective criteria.

c) Up to three additional linear (1m x 10m) plots besides streams or ditches, where present.

d) Up to three additional linear plots on verges beside roads or trackways, where present.

2.3 In all vegetation plots, plants are to be identified to species level with estimates of cover made; the plots are to be permanently marked using metal plates.

3 Outputs from the contract to be delivered to NCC

3.1 A preliminary report will: summarise the methods of the survey; describe the general location and characteristics of the 512 sample squares; list the records of vegetation from the c. 7,000 plus quadrats (both as hard copy and in machine readable form); and include an initial analysis of the distribution of selected vegetation/habitat types between the 32 land classes. Maps showing the distribution of selected species of particular interest will be included.

3.2 A final contract report will include a much fuller analysis of the pattern of vegetation types, distribution and abundance of selected species, and the trends in species diversity for the vegetation samples. The report will also include results from a full examination of the distribution of semi-natural vegetation types within the sample squares.

3.3 As part of joint arrangements between ITE and the NCC successor agencies, it is intended that a comprehensive study of the factors which influence the nature and composition of the vegetation, will assess the extent and quality of remaining parcels of semi-natural vegetation and how these are changing in the wider countryside. This would include an examination of the effects of various types of designation and protection (SSSI, National Parks and ESA) or land ownership or management (private, National Trust, Forestry Commission, or conservation organisations) on the quality of the vegetation recorded. Maps showing the distribution of species of interest would result, as well as the distribution and extent of different species assemblages (at least some of which may be defined in terms of National Vegetation Classification (NVC) community types).

3.4 There is potential for original scientific publications arising from analysis of the vegetation data being contracted by NCC, in the context of the other information being collected by the survey. The extensive nature of the vegetation data gathered will enable the relationships between types of vegetation and land use to be examined. When the survey programme is repeated the effects of changing land use on individual species, on species richness, and on the composition of vegetation communities, will be explored in greater depth. Publications may be prepared beyond the timing for the contract reports to NCC, and those which make use of data gathered

by the NCC-funded survey will acknowledge the NCC support. They will also be referred to an appropriate officer in one of the NCC successor agencies for approval prior to submission for publication, allowing up to one month for comments to be made.

3.5 There will be the opportunity for staff in the NCC successor agencies to learn more about the results from the 'Countryside Survey 1990', including the NCC-funded aspects, at seminars and informal discussions as arranged by ITE staff. Individuals for other appropriate organisations may be invited to participate with the joint agreement of ITE and NCC successor agency staff.

4 Timescales for the contract

The results from the field survey programme (as records from each series of quadrats in each sample square), with a technical summary of the methods employed to gather the data, are to be submitted to NCC before 31 March 1991 (the preliminary report described at 3.1 above). An analysis of the patterns of vegetation types, in relation to the 32 land classes identified within the ITE Land Classification, together with a description of the extent of areas of semi-natural vegetation within the sample squares, will be included in the final contract report (described at 3.2 above) to be submitted to NCC before 30 September 1991.

5 Contract Officers

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Annex B

**Methods used in the Countryside Survey 1990; chapter from
the Field Handbook covering vegetation recording.**

[Taken from the Countryside Survey 1990 Field Handbook]

6.2 VEGETATION RECORDING

6.2.1 General

In 1977/8, as part of the first ITE national sample survey, detailed information on plant species was collected from quadrats and from linear plots adjacent to some features (hedges, roads and streams). In 1988, a sub-sample of the original sites were re-recorded and changes noted. As a result of this work, the quadrats are to be resurveyed again in 1990 as part of a monitoring programme looking at changes in the quality of land cover types, as well as overall changes taking place.

As well as recording vegetation data from plots visited earlier, new plots are to be established which will give more information on specific elements of rural vegetation; these are concerned particularly with linear features and semi-natural habitat types.

Although the earlier plots will have to be relocated using mapped information only, all plots visited in 1990 will be permanently marked using metal plates; other information (including measurements, sketch maps, and aerial photographs) will assist in future plot location. These permanent markers will allow more accurate identification of plots in future surveys.

6.2.2 Method of recording vegetation

The survey requires recording from different sizes of vegetation plot and fuller descriptions of each are given below. However, the basic recording procedure is the same for all types of plot and a standardised recording sheet has been devised (Figure 2). It has the following sections:

- a) Header - information on the broad environmental and management attributes of the plot should be recorded, according to the parameters listed. Land use may be marked as N/A.
- b) Listed species - the main part of the form is taken up with a list of 200 common species of plants (herbs, grasses, bryophytes). Where any of these is present, then the species name should be struck off and, when appropriate, the number of nested quadrat recorded. On completion of recording, the estimated cover % should be written against each species, using 5% cover categories.
- c) Unlisted species - a space remains at the foot of the form in which should be recorded the names, nested quadrat number, and cover %, for any other species which are not listed.

(It has been found that the species list from most plots is made up very largely from the species already listed on the recording form with perhaps 10% having to be added.)

In all cases a sketch should be included on the back of the recording sheet which shows the position of the plot and all relevant measurements and angles, as described below. All vascular plants should be recorded, together with a restricted list of bryophytes and lichens.

The list of aggregates and restricted list is given in Tables 1 and 2. Species which cannot be easily identified should be collected and pressed for later identification. Mosses/lichens growing on rocks/trees should be ignored.

Estimates of cover should then be made within 5% categories. It is necessary to constantly check between partners that there is not a tendency to over or under estimate. Cover may be over 100% if several layers are present e.g. Pteridium over Agrostis. Species with less than 5% cover are not given cover values.

Cover of tree species, if rooted in the plot, should be recorded in the normal way; there is no need to record any difference between seedlings and adult trees. Tree species which are overhanging the plot should have cover recorded in the second % cover column.

"Bare ground" includes leaf litter and rock.

6.2.3 Plot types

The following types of plots are to be recorded in each square:

Quadrats

- X i. 5 x 200 m² quadrats - pre-positioned at random
- Y ii. 5 x 4 m² quadrats - to be placed in semi-natural vegetation types

Linear plots

- B iii. up to 5 linear boundary plots, in enclosed land only
- H iv. up to 2 linear hedgerow plots
- S/W v. up to 5 linear steamside plots
- R/V vi. up to 5 linear roadside plots

Of the 512 squares that will be surveyed in 1990, 128 will be 'new' and a further 128 will not have had vegetation plots recorded in them before. In these 256 squares, linear plots will not have been marked on maps; the surveyor will need to apply rules (given below) to identify the location of these features within the square.

i. **LARGE QUADRATS (X1 - X5)**

Location/Relocation

These large quadrats (200m² - "Wally plots") will be marked on the maps in advance, and should be located as accurately as possible. About half of them will have been recorded in 1977/8 and precise relocation is essential.

There will be instances where the land use has changed so that a vegetation quadrat is no longer appropriate eg a field has been developed into a housing estate. If the new land use is characterised by a vegetation in which a quadrat can be placed (eg golf-course) then

the original position should be relocated and a quadrat should be recorded. Where the new land use clearly precludes the recording of vegetation, a new quadrat position should be selected as follows:

Locate a boundary between the developed area of land and the nearest acceptable land cover type; locate a position on that boundary which is nearest to the original plot; take 20 (twenty) paces in the opposite direction to the original plot; record full details of the changes involved.

Laying out and recording

The vegetation plot is 200 m² and is set up by using the survey poles provided with the strings forming the diagonal of the square (Figure 3) The diagonals should be orientated carefully at right angles and the quadrat should be orientated with the strings on the North/South, East/West axes. The different plot size markings shown in Figure 3 are marked by different coloured strings on the appropriate position off the diagonal.

Details of the quadrat should be entered at the top of the recording form according to the prompts given. Any additional comments, not covered elsewhere, should be entered in the space provided.

Using the recording form provided, all species are recorded from the inner nested (4m²) quadrat first, either by striking out the species names on the "top 200" list or by adding species names at the bottom of the recording form. A "1" should then be recorded in the column headed "Q" to show that the species was recorded in the first quadrat. The cover, in 5% bands, should then be shown in the second column (marked "%").

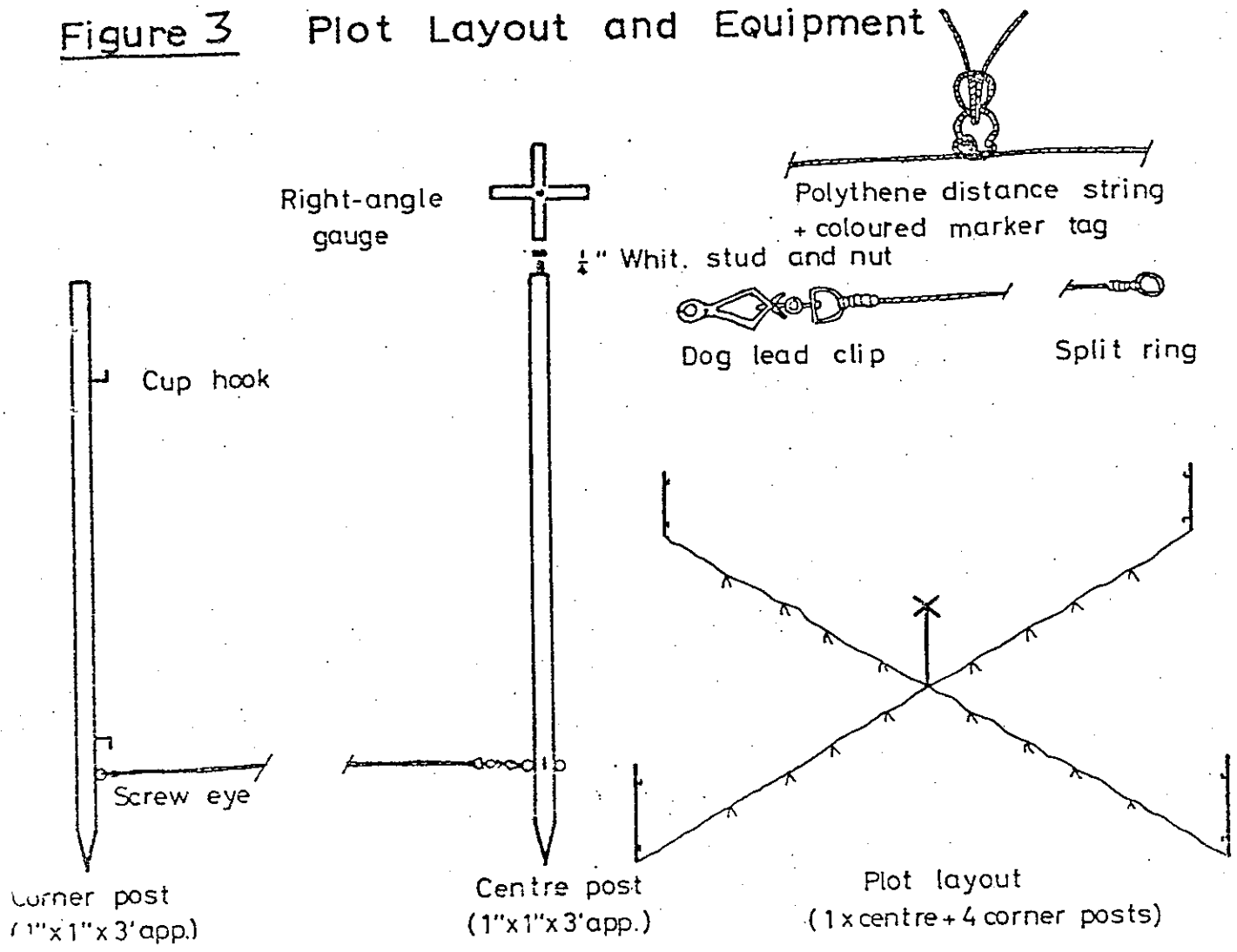
When the inner quadrat has been completed, the second nested quadrat should be examined and any additional species should be recorded using a "2" in the "Q" column. No cover estimate is made at this stage. The procedure continues until all sizes of quadrats have been recorded. Only after a final check for any missed recordings is a final overall cover estimate made for all species with a cover of 5% or more in the whole 200m² quadrat.

If the plot falls in a field with a growing crop (whether harvested or not) then the plot should be moved to the edge of the field nearest to the original position. The new plot should be taken as being a 14m square (estimated, not measured), starting 3 metres into the crop (to avoid any edge effect). Access should be made using drill lines where possible and causing minimum disturbance to the crop (or where the crop may be on a future visit). The species list should be compiled from what can be seen in the crop - accuracy is difficult to achieve but samples must be taken from arable crops however possible.

Permanent marking

Wherever possible, the quadrat should be marked with a metal plate immediately adjacent to the south corner of the quadrat. This should be possible in most unenclosed land and in woodlands. The plate should not be within the quadrat itself; it should be driven into the ground at an angle of 45 degrees until the top edge is just below ground level (aligned to give maximum likelihood of easy relocation with a metal detector). Wooden stakes may be suitable in woodlands and moorland situations where metal plates would be difficult to re-locate.

Figure 3 Plot Layout and Equipment

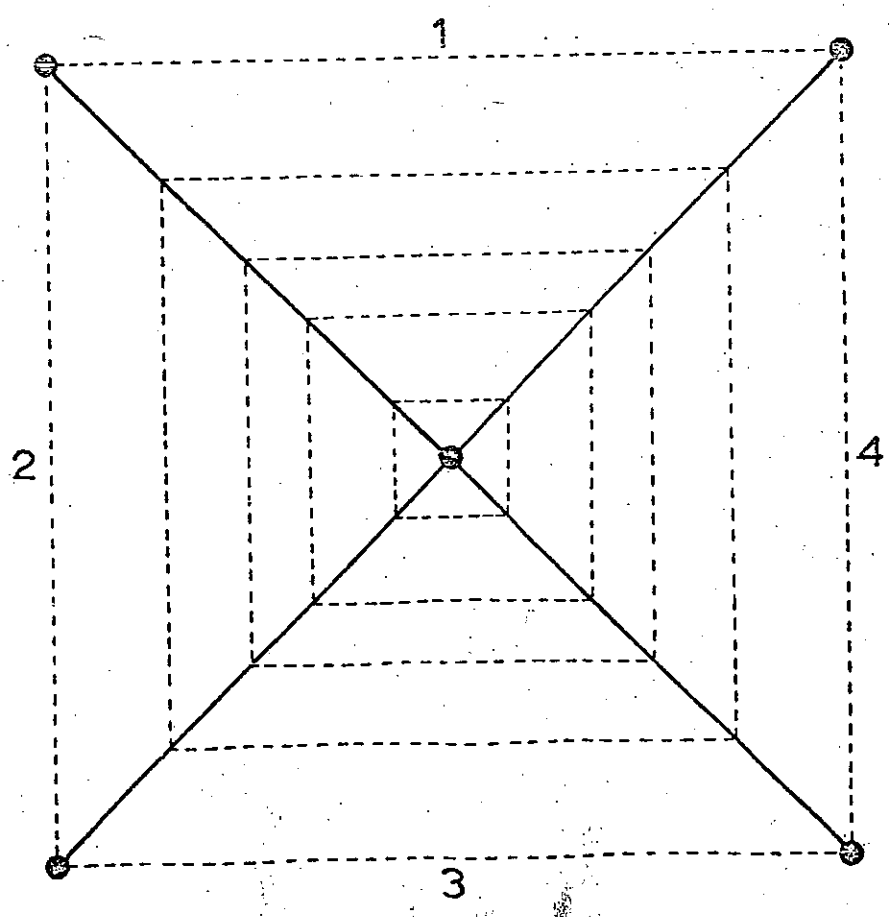


Sides

- 2.00m
- 5.00m
- 7.07m
- 10.00m
- 14.14m

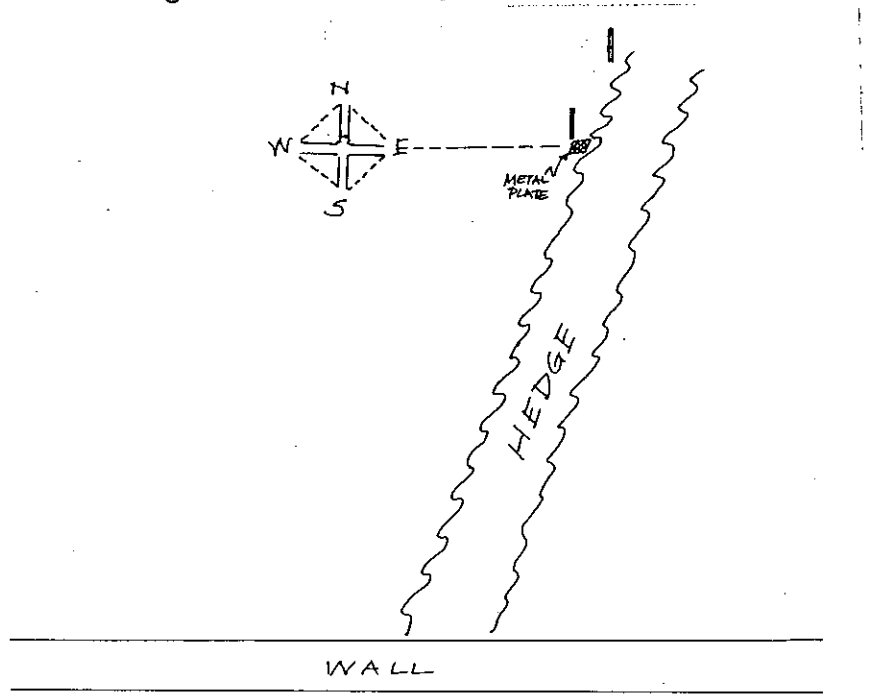
Half-diagonals

- 1.42m
- 3.54m
- 5.00m
- 7.07m
- 10.00m



Elsewhere, in cultivated land or wet habitats, quadrats should be marked by inserting a plate at the nearest field boundary, along a cardinal bearing line (Figure 4). The distance of the boundary from the quadrat should be measured from the centre of the quadrat to the centre of the boundary. In semi-enclosed areas where plate burial is inappropriate and where boundaries are more than 100 metres away, there should be an attempt to mark the plot by reference to an obvious local feature, such as a boulder or tree where the plate should be buried (N.B. see Boundary Plots for definitions of field boundary)

Figure 4 - locating a Boundary plot



In all cases, the position of the quadrat, and marker plate(s) should be sketched on the reverse of the recording sheet, and annotated with distances (measured with a tape) and, if measurements are not possible, compass bearings. All distances should be measured from the centre of the plot to easily recognisable, and permanent, features in the surrounding landscape. A print photograph should be taken (see Photography).

ii. **SMALL QUADRATS (Y1 - Y5)**

Location/Relocation

Five small quadrats (2m x 2m) should be placed in natural or semi-natural land cover types in each square. They will be placed by the surveyor according to the following guidelines:

1. The five quadrats should be placed in five different land cover types, where these are available, additional to those types that have already been represented by the five large quadrats.
2. The plot locations should be determined after all land cover mapping has been completed. During the mapping phase, the presence of small areas of natural or semi-natural vegetation which are

below the size of a minimum mappable unit should be noted (and mapped, if helpful). Land cover categories which are additional to the mapping codes might include:

- Strandline vegetation
- Dune slack
- Dune grassland
- Dune scrub
- Machair
- Inland saltmarsh
- Inundation grassland
- Ultrabasic vegetation
- Calcareous flush
- Acid/neutral flush
- Bryophyte dominated springs
- Montane heath
- Rock ledges

3. If the total number of different semi-natural and natural land cover types exceeds five, then random numbers should be used to draw five types for sampling (remembering not to sample those already represented within the large quadrats). Where there is more than one area of a type, then the largest area should be chosen.
4. If there are fewer than five additional land cover types available in which to place the plots, then the placing of quadrats will be proportional to the size of land cover types available (ie the larger land cover types receive more quadrats). This can be done by dividing the areas of each type into "mappable areas" and comparing sizes. Positions of plots within each area can also be achieved by the use of a grid and random numbers.
5. In all cases, a complete record of suitable habitats should be recorded, together with the frequency of each. The five plot numbers should be indicated on the same list, as shown in the following example:

Chalk grassland	① ^{x plot}	2	3	4	⑤ ^{y5 (random)}	6
Fen	1	② ^{y1}				
Marsh	① ^{y*}	2	3			
Decid. woodland	1	② ^{y2}				
Conif. woodland	① ^{y3}					

Laying out and recording

The quadrat should be placed in the 'centre of gravity' of the habitat - this is a large element of judgement involved but efforts should be made to avoid bias in positioning of the plot. If the centre of gravity is not representative of the habitat type (eg rock boulder in middle of flush), then re-randomise the plot location.

If the plot is put into a linear feature within which a 2x2 m plot will not fit then the area should be made up to 4m² by extending the length - this should be clearly depicted with measurements in the sketch on the back of the recording sheet.

The survey poles should be used to mark out the corners of the quadrat by reference to the first set of marker strings (equivalent to the inner nested quadrat of the large quadrats). As with large quadrats, the poles should be orientated along north/south, east/west axes. However, in a linear feature, this may not be possible and the main axis of the plot should be measured and recorded.

The species present in the square should be recorded in the same way as for the inner nested quadrat of the large quadrats and a cover estimate made.

Permanent marking

In many cases it will be possible to place the plate immediately adjacent to the survey pole at the south point of the quadrat, but just outside (6") the quadrat boundary. If the plate has to be placed elsewhere, around the perimeter of the quadrat, then this should be clearly shown on the associated sketch.

If it is not possible to place the plate adjacent to the quadrat, then it should be placed at the nearest possible location and distances and angles measured to show the precise location.

iii. BOUNDARY PLOTS (B1 - B5)

General rules for linear (10 x 1m) plots:

1. No two linear plots of the same type should be placed within 10m of each other on the same linear feature.
2. No two linear plots of different types should overlap.
3. The 1 metre width should be measured across the surface of the terrain so that, on a bank, the true horizontal width, as viewed from above, would be less than 1 metre.

Location/Relocation

In enclosed land only, a boundary linear plot is to be recorded at the boundary marker of each of the 5 x 200m² quadrats (see Figure 4).

In this context, a boundary is taken to be any physical feature that has a length and which is an interface between the land cover of the 200m² plot and any other land cover type. This might include a hedge, wall, fence, ditch, embankment etc. It will not include land cover which is associated with the management practice of the field eg headlands.

In general the Boundary plot will take precedence over other types of linear plot. If two plots would otherwise end up in the same location, then the Boundary plot would be laid out and the other linear feature moved to the nearest permissible length of boundary which was at least 10m away. The exception is where a linear plot has previously been

located in the same position as a Boundary plot would fall. In this case the Boundary plot would be moved to the next nearest length of boundary on a different cardinal bearing.

The marker plate for the 200m² plot should have been positioned at the boundary nearest to the plot and should be lying on one of the cardinal points of the compass, as measured from the centre of the plot.

Laying out and recording

The linear plot should be laid out with the marker plate on the right side of the plot when you are facing it from the field. In most cases the feature recorded will be vertical, ie. a hedge, wall or fence - in these cases the plot should be 1m from the centre of the feature. In some cases where there is no vertical feature, but a grass strip, the plate should be buried 1m in from the edge of the field (crop), and the linear plot should be recorded in the 1m adjacent to the edge.

Where the boundary is composed of several different elements eg hedge with ditch, then the laying out procedure should be decided by reference to the dominant vertical feature eg hedges/walls/fences are dominant to ditches which are dominant to grass strips. Once the dominant feature has been identified and the plot laid out accordingly, then recording takes place in the 1m strip, irrespective of whether it includes part of another linear feature. (N.B. different rules apply in the case of H, S/W, R/V plots - see below)

Boundary plots which are adjacent to large ditches or dykes should be located at the water's edge, and not at the top of the bank. Where a field is immediately adjacent to a curtilage, then the boundary plot should run from the curtilage into the field.

All species within the plot are recorded using standard recording forms and cover estimates made.

Permanent marking

The plot is already marked by the plate for the adjacent 200m². Note that the plot lies to the left of the marker when viewed from the field.

iv. **HEDGEROW PLOTS (H1 - H2)**

Location/Relocation

In the case of squares recorded in 1978, the original positions will be marked on the map - they should be relocated as closely as possible. If there is no longer a hedgerow at the position marked, then this should be indicated on the map and the plot should be moved to the nearest hedgerow - this new plot should be renamed (H3, H4) and marked on the map.

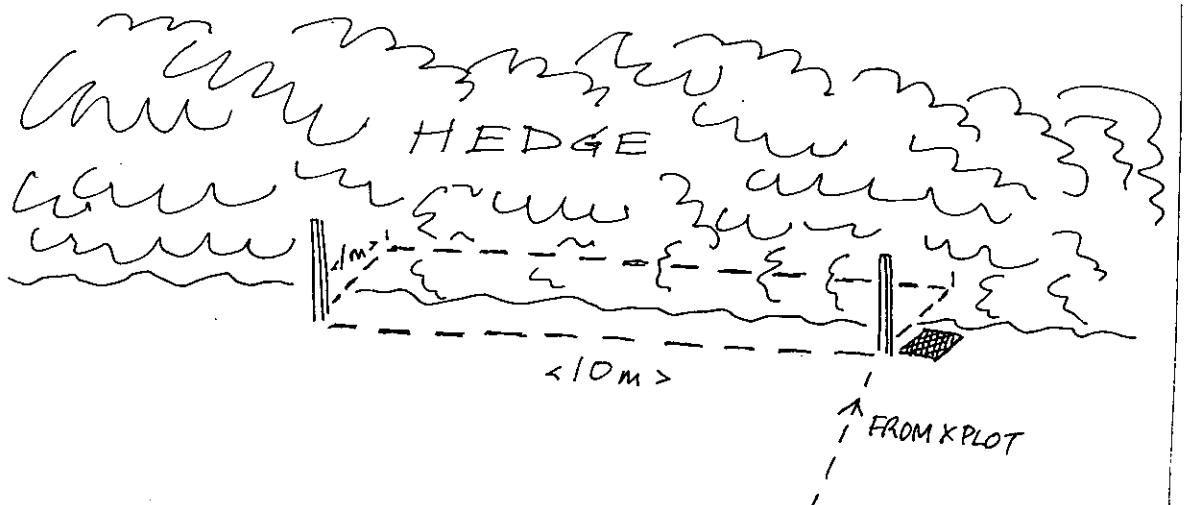
If one or both hedges are not marked on the map but hedges exist in the square, they should be added using the methodology developed in 1978 (see para 6.2.4). However 2 plots should not be nearer than 10m to each other, so if there is not more than 20m of hedge in the square, only one plot should be recorded.

In the case of squares which were not recorded in 1978, the position of these 2 plots should be located using the methodology developed in 1978, (see para 6.2.4). The plot should be on the side of the linear feature closest to the quadrat.

Laying out and recording

The position of the plots should be temporarily marked with a survey pole at each end, one metre out from the centre of the hedge (see Figure 5). A measuring tape can be used to mark the outer edge of the plot.

Figure 5 - laying out a hedgerow plot



If there is not a clear metre between the centre of the hedge and another linear feature, eg ditch, then the hedge should be relocated at the nearest permissible location.

All species should be recorded on the standard recording sheet and cover estimates made.

Permanent marking

Each plot should be permanently marked with a metal plate at the right hand end of the plot when you are facing it from the field - the location of the plate should be indicated on a sketch with distances from a marked feature, eg. gate.

v. **STREAMSIDE PLOTS (S1 - S2; W1 - W3)**

Streamside plots 10x1m (S1, S2)

Location/Relocation

In the case of squares recorded in 1978, the original positions will be marked on the map - they should be relocated as closely as possible. If the stream or ditch is dry then it should still be recorded, but noted on the recording sheet.

If one or both stream plots are not marked but streams, rivers or ditches exist in the square, they should be added using the methodology

developed in 1978 (para 6.2.4). However 2 plots should not be nearer than 10m to each other, so if there is not more than 20m of stream/ditch/river in the square, only one plot should be recorded.

In the case of squares which were not recorded in 1978, the position of these 2 plots should be located using the methodology developed in 1978, (see para 6.2.4). The plot should be on the side of the linear feature closest to the quadrat.

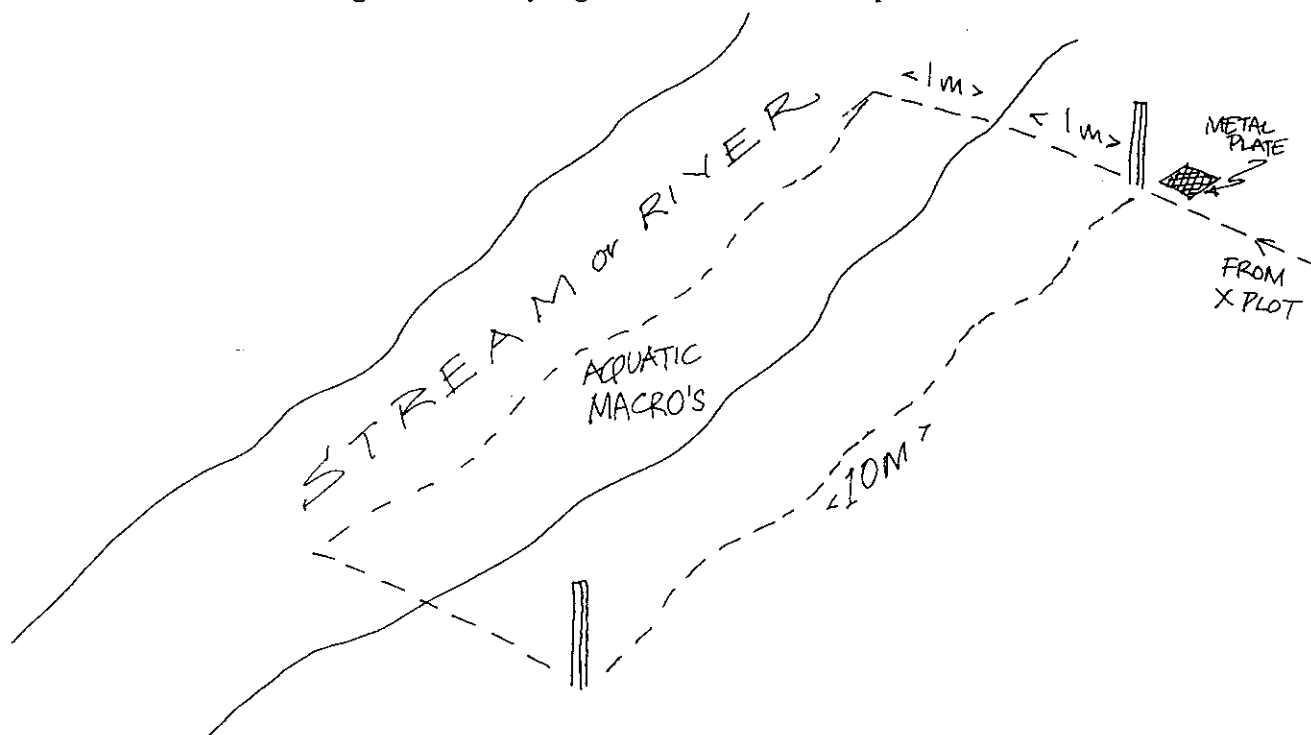
If the plot coincides with a Boundary plot, then it should be moved to the nearest permissible length of stream/river/ditch so that no part of the plot is within 10 metres of the Boundary plot.

Streams that have dried out in a temporary/seasonal drought, should be used if the usual presence of water has influenced the species composition of the streamside.

Laying out and recording

The position of the plots should be marked with a plate at the right end of the plot when you are facing it from the field (see Figure 6) - the location of the plate should be indicated on a sketch with distances from a marked feature, eg. gate.

Figure 6 - laying out a Streamside plot



The waterside edge of the plot should be along what appears to be the normal highest point that water reaches (ie excepting flood situations). All species found within a 1 metre width from this edge should be recorded and marked on the standard recording form with a "1" in the "Q" column.

In addition to the 10m x 1m plot, a further linear plot of the same size should be recorded on the water side, to record species which are rooted or floating in the water (not rooted on the bank of the

stream/river) - species in this additional plot should be recorded using the standard form but with a "2" in the "Q" column. If the waterway is less than 1m wide then record additional species but also make a note of the average width of the waterway over the ten metres.

Extra wet (ditch/stream/river) plots - 10x1m - W1, W2, W3

If the existing stream plots (S1, S2) are within the area designated by IFE for the 'freshwater sample' (and satisfies the appropriate criteria) then this should be used as the freshwater sampling point.

However, if this is not the case, then the first priority in locating one of the 3 extra 'wet' linear plots, is that it should coincide with the site for recording the freshwater sample (which are marked on maps, usually as "W3"). If the plot marked on the IFE map coincides with a "S1" or "S2" plot, then the name should be changed on the IFE map.

If the site chosen for the IFE biota sample has to be moved, then the linear vegetation plot should be moved with it.

The other 'wet' plots should be used to ensure that different types of ditches/streams/ivers are sampled where they exist. If all types are not represented, then samples should be allocated according to the total lengths of the different types present (ie the type with the longest length has most plots). If possible, the variation within more common types should be expressed in the choice of plots.

The following categories are recognised :

- River or canalised river
- Stream
- Canal
- Non-roadside ditch
- Roadside ditch
- (as defined for map codes 53 - 58)

Dry ditches should not be included. The first priority is to ensure that there is at least 1 plot in each category existing in the square, including the 2 original plots S1 & S2. The second priority is to include as much variation as possible so that lengths of stream with species assemblages not covered by the existing plots are sampled.

The plots should be located in the centre of that part of the 'waterway' type which lies within the square. If there is only one type of waterway then all 5 plots should be placed along its length, providing that it is long enough to put them more than 10m apart. The plots should not be put within 10m of each other.

The position of these plots must be marked with plates and sketched as for S1 & S2. The type of ditch/stream/river adjacent to the plot should be indicated on the recording sheet.

Aquatic species in the adjacent metre should be recorded in the same way as for S1/S2 plots.

vi. ROADSIDE PLOTS (R1 - R2; V1 - V3)

Roadside plots 10x1m (V1, V2)

Location/Relocation

In the case of squares recorded in 1978, the original positions will be marked on the map - they should be relocated as closely as possible. If one or both verges are not marked but road verges exist in the square, they should be added using the methodology developed in 1978 (para 6.2.4). However 2 plots should not be nearer than 10m to each other, so if there is not more than 20m of road verge in the square, only one plot should be recorded.

In the case of squares which were not recorded in 1978, the position of these 2 plots should be located using the methodology developed in 1978 (para 6.2.4).

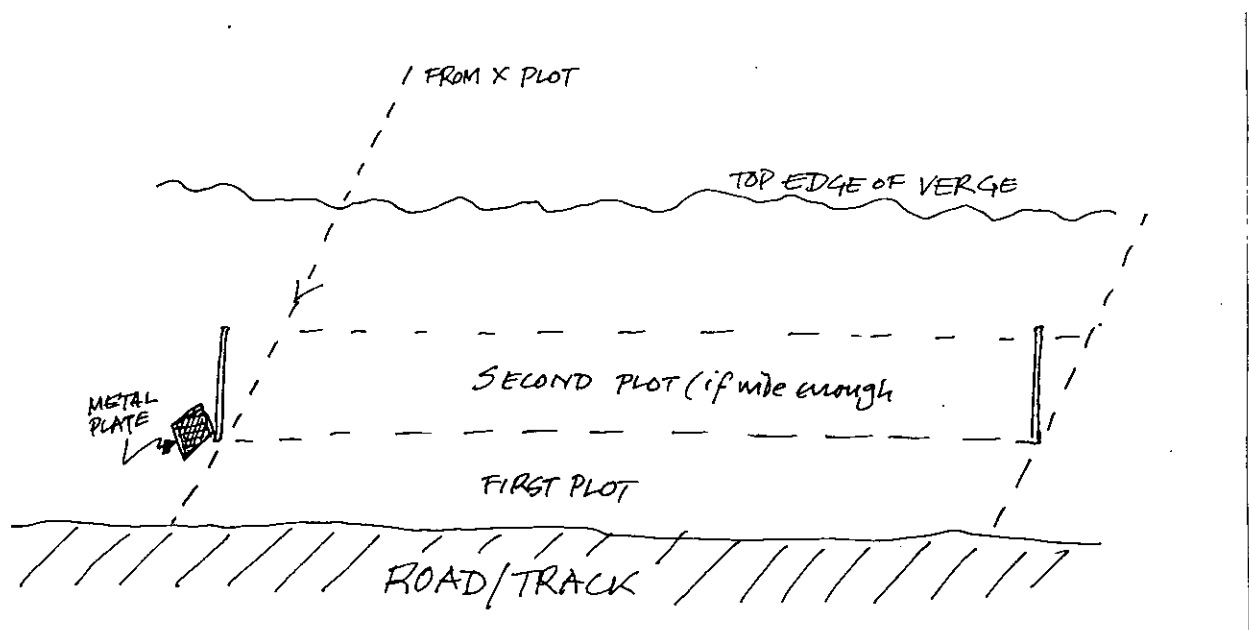
Verge plots should not be located where the verge is less than 1m wide; instead the nearest verge with a 1 metre width should be located.

Laying out and recording

The position of the plots should be marked with a plate at the right end of the plot when you are facing it from the field (see Figure 7) - the location of the plate should be indicated on a sketch with distances from a marked feature, eg. gate. As it may be necessary to move the plot to the other side of the road (because the first verge is not wide enough) it should be made clear which side of the road is recorded. (In such cases, the plate is still on the right hand side of the plot when viewed from the X plot).

The roadside edge of the plot should start at the interface between soil and tarmac, not where overhanging vegetation starts.

Figure 7 - laying out a Roadside plot



Where the verge is more than 2m wide (from the edge of the road, to 1m from the centre of the next feature, ie. hedge, wall, fence) then a supplementary verge plot should be recorded adjacent to the first to sample the vegetation between 1m and 2m from the roadside. However, only additional species should be recorded and a number '2' recorded in the "Q" column of the standard recording sheet. If there are no additional species, then this should be noted accordingly.

Extra verge plots - 10x1m - V1, V2, V3

Three further verge plots should be used to ensure that different types of roads and tracks are sampled where they exist. The following categories are recognised :

- i. 'A' and 'B' roads including dual carriageways (red and brown)
- ii. Yellow roads if tarmac
- iii. Constructed tracks and non-tarmac roads

(motorways are excluded from this classification)

The first priority is to ensure that there is at least 1 plot in each category of road present in the square, including the 2 original verge plots R1 & R2. The second priority is to include as much variation as possible so that lengths of verge with species assemblages not covered by the existing plots are sampled. The plots should be located in the centre of the verge type. If there is only one type of verge then all 5 plots will be on that verge, providing that it is long enough to put them more than 10m apart.

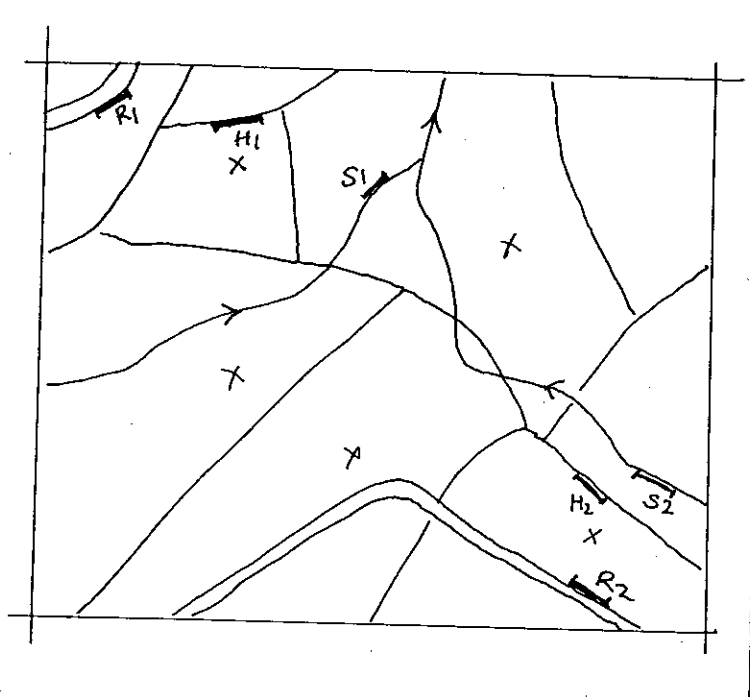
The position of these plots must be marked with plates and sketched as for R1 & R2.

The type of road or track adjacent to the plot should be indicated on the recording sheet. Additional species should be recorded from a second linear plot on wide verges, as for R1/R2 plots.

6.2.4 1978 Rules for locating linear plots

The linear plots (2 each for hedgerows, streamsides and roadsides) are 10 x 1 m; they should be located as close as possible to the two large quadrats (200m²) which are furthest apart (see Figure 8). They must then be marked on the map provided.

Figure 8 - location of linear plots in 1977/78



On reaching the linear feature, from the 200m² quadrat, the 10m plot is laid out to the left and the width is defined as follows:

- Hedgerows: the 1m width extends out towards the field from the centre of the hedge.
- Roadsides: the 1m width extends inwards from the edge of the road edge.
- Streamsides: the 1m width extends landwards from the point where it appears that water reaches when the watercourse is full (but not flooded). Only permanent water courses should be included; ditches may be included if they appear to be normally wet.

Where the nearest feature is ineligible (because it is not wide enough, or is confused by the presence of a different type of linear within its width) then a new location should be chosen at the nearest permissible position. Any changes should be noted and clearly marked on sketch maps.

6.2.5 Guidelines on species identification

Using the same criteria as were used in 1978, the following section gives some guidelines on species identification.

Surveyors are expected to record to the species level. However, there are certain species which are notoriously difficult to separate out

from closely related examples of the same genus. It is therefore necessary, in order to remain consistent with previous surveys, to allow certain combinations to be recorded.

The combinations were determined on the basis of experience, where it is considered that unless good specimens are available it is not possible to identify the species accurately. A number of the species combinations have similar ecological amplitudes e.g. *Cardamine hirsuta/flexuosa*. The following are acceptable combinations:

Arctium sp
Betula sp
Callitriche sp.
Cardamine hirsuta/flexuosa
Epilobium tetragonum/obscurum
Small Euphorbia sp
Euphrasia sp
Hieracium sp (except pilosella)
Juncus articulatus/acutiflorus
Luzula multiflora/campestris
Mentha sp
Myosotis sp
Poa trivialis/nemoralis
Polygala serphyllifolia/vulgaris
Quercus sp
Rhinanthus sp
Rosa sp (except *R. arvensis*, *R. pimpinellifolia*)
Rumex conglomeratus/sanguineus
Sagina sp
Taraxacum sp
Viola riviniana/reichenbachiana
Viola hirta/odorata
Non suckering elms (*U. glabra*)
Suckering elms (*U. procera*)

Only the following Bryophytes and Lichens should be recorded (with individual cover values).

Calycierson cuspidatum	Lophocolea spp.
Atrichum undulatum	Mnium hornum
Aulacomnium palustre	Mnium undulatum
Brachythecium rutabulum	Pellia spp.
Breutelia chrysocoma	Peltigera canina
Bryum spp.	Philonotis
Campylopus atrovirens	Plagiothecium undulatum
Campylopus pyriformis/flexuosa	Pleurozium schreberi
Cladonia arbuscula	Polytrichum commune
Cladonia impexa	Polytrichum formosum
Cladonia pyxidata/coccifera	Polytrichum juniperinum/piliferum
Cladonia uncialis	Pseudoscleropodium purum
Dicranella heteromalla	Rhacomitrium lanuginosum
Dicranum majus	Rhytidiadelphus loreus
Dicranum scoparium	Rhytidiadelphus squarrosus
Drepanocladus	Rhytidiadelphus triquetrus
Eurhynchium spp.	Sphagnum (green/fat/hooded)
Fissidens	Sphagnum (green/thin)
Hylocomium splendens	Sphagnum (red/fat)
Hypnum cupressiforme	Sphagnum (red/thin)
Leucobryum glaucum	Thuidium tamariscinum

The 200 most frequent species in the ITE 1977/78 survey are listed on the field recording sheets; they are abbreviated and their full names are as follows:

CROPS :

213 BARLEY *Hordeum vulgare*
454 WHEAT *Triticum aestivum*

GRASSES :

8 Agro rep *Agropyron repens (Elymus repens)*
10 Agro can *Agrostis canina*
11 Agro sto *Agrostis stolonifera*
12 Agro ten *Agrostis tenuis (A.capillaris)*
20 Alop gen *Alopecurus geniculatus*
21 Alop pra *Alopecurus pratensis*
28 Anth odo *Anthoxanthum odoratum*
37 Arrh ela *Arrhenathrum elatius*
562 Aven fat *Avena fatua*
55 Brac syl *Brachypodium sylvaticum*
58 Brom mol *Bromus mollis (B.hordeaceus)*
61 Brom ste *Bromus sterilis*
123 Cyno cri *Cynosurus cristatus*
124 Dact glo *Dactylis glomerata*
129 Desc ces *Deschampsia cespitosa*
130 Desc fle *Deschampsia flexuosa*
165 Fest ovi *Festuca ovina*
166 Fest rub *Festuca rubra*
209 Holc lan *Holcus lanatus*
210 Holc mol *Holcus mollis*
253 Loli mul *Lolium multiflorum*
254 Loli per *Lolium perenne*
283 Moli cae *Molinia caerulea*
287 Nard str *Nardus stricta*
304 Phle pra *Phleum pratense*
319 Poa ann *Poa annua*
321 Poa pra *Poa pratensis*
847 Poa triv *Poa trivialis*
404 Sieg dec *Sieglingia decumbens (Danthonia d.)*

SEDGES, RUSHES :

74 Care bin *Carex binervis*
76 Care dem *Carex demissa*
78 Care ech *Carex echinata*
81 Care nig *Carex nigra*
85 Care pan *Carex panicea*
86 Care pil *Carex pilulifera*
152 Erio ang *Eriophorum angustifolium*
153 Erio vag *Eriophorum vaginatum*
228 Junc a/a *Juncus articulatus/acutiflora*
230 Junc bul *Juncus bulbosus*
231 Junc con *Juncus conglomeratus*
232 Junc eff *Juncus effusus*
235 Junc squ *Juncus squarrosus*
260 Luzu c/m *Luzula multiflora/campestre*
443 Tric cae *Trichophorum caespitosum (Scirpus caespitosus)*

FERNS :

41	Athy fil	Athyrium filix-femina
53	Blec spi	Blechnum spicant
851	Dryo dil	Dryopteris dilatata
138	Dryo fil	Dryopteris filix-mas
147	Equi arv	Equisetum arvense
348	Pter aqu	Pteridium aquilinum

FORBS/WOODY SP.:

2	Acer pse	Acer pseudoplatanus
4	Achi mil	Achillea millefolium
5	Achi pta	Achillea ptarmica
18	Alli pet	Alliaria petiolata
26	Ange syl	Angelica sylvestris
29	Anth syl	Anthriscus sylvestris
587	Arum mac	Arum maculatum
47	Bell per	Bellis perennis
50	Betu sp.	Betula spp.
64	Call vul	Calluna vulgaris
68	Camp rot	Campanula rotundifolia
69	Caps bur	Capsella bursa-pastoris
70	Card h/f	Cardamine hirsuta/flexuosa
71	Card pra	Cardamine pratensis
92	Cent nig	Centaurea nigra
96	Cera hol	Cerastium holosteoides (C.vulgatum, C.fontanum)
97	Cham ang	Chamaenerion angustifolium (Epilobium angustifolium)
98	Chen alb	Chenopodium album/polyspermum
101	Chry opp	Chrysosplenium oppositifolium
103	Cirs arv	Cirsium arvense
104	Cirs pal	Cirsium palustre
105	Cirs vul	Cirsium vulgare
113	Cono maj	Conopodium majus
114	Conv arv	Convolvulus arvensis
117	Cory ave	Corylus avellana
118	Crat mon	Crataegus monogyna
121	Crep sp.	Crepis spp.
590	Dact mac	Dactylorhiza maculata agg.
132	Digi pur	Digitalis purpurea
136	Dros rot	Drosera rotundifolia
140	Empe nig	Empetrum nigrum
141	Endy non	Endymion non-scriptus (Hyacinthoides n-s)
143	Epil hir	Epilobium hirsutum
747	Epil mon	Epilobium montanum
144	Epil pal	Epilobium palustre
150	Eric cin	Erica cinerea
151	Eric tet	Erica tetralix
160	Euph sp.	Euphrasia spp.
168	Fili ulm	Filipendula ulmaria
170	Frax exc	Fraxinus excelsior
177	Gali apa	Galium aparine
182	Gali pal	Galium palustre
183	Gali sax	Galium saxatile
190	Gera mol	Geranium molle
193	Gera rob	Geranium robertianum
195	Geum urb	Geum urbanum
197	Glec hed	Glechoma hederacea
204	Hede hel	Hedera helix

206	Hera sph	Heracleum sphondylium
207	Hier pil	Hieracium pilosella
208	Hier sp.	Hieracium spp.
220	Hype pul	Hypericum pulchrum
223	Hypo/Leo	Hypochaeris spp./Leontodon spp.
238	Lami alb	Lamium album
239	Lami pur	Lamium purpureum
240	Laps com	Lapsana communis
243	Lath pra	Lathyrus pratensis
255	Loni per	Lonicera periclymenum
256	Lotu cor	Lotus corniculatus
273	Matr mat	Matricaria matricarioides (Chamomilla suaveolens)
277	Merc per	Mercurialis perennis
286	Myri gal	Myrica gale
288	Nart oss	Narthecium ossifragum
296	Oxal ace	Oxalis acetosella
302	Pedi syl	Pedicularis sylvatica
307	Pice sit	Picea sitchensis
311	Ping vul	Pinguicula vulgaris
315	Plan lan	Plantago lanceolata
316	Plan maj	Plantago major
833	Poly vul	Polygala vulgaris
324	Poly avi	Polygonum aviculare
328	Poly per	Polygonum persicaria
336	Pote ans	Potentilla anserina
337	Pote ere	Potentilla erecta
339	Pote rep	Potentilla reptans
342	Prim vul	Primula vulgaris
343	Prun vul	Prunella vulgaris
346	Prun spi	Prunus spinosa
350	Quer sp.	Quercus spp.
351	Ranu acr	Ranunculus acris
354	Ranu fic	Ranunculus ficaria
355	Ranu fla	Ranunculus flammula
357	Ranu rep	Ranunculus repens
370	Rosa sp.	Rosa spp.
373	Rubu fru	Rubus fruticosus
376	Rum a'la	Rumex acetosa
375	Rum a'sa	Rumex acetosella
837	Rume con	Rumex conglomeratus
378	Rume cri	Rumex crispus
380	Rume obt	Rumex obtusifolius
381	Sagi sp.	Sagina spp.
386	Samb nig	Sambucus nigra
401	Sene jac	Senecio jacobaea
402	Sene vul	Senecio vulgaris
405	Sile dio	Silene dioica
413	Sonc asp	Sonchus asper
414	Sonc ole	Sonchus oleraceus
415	Sorb auc	Sorbus aucuparia
420	Stac syl	Stachys sylvatica
421	Stel als	Stellaria alsine
423	Stel hol	Stellaria holostea
424	Stel med	Stellaria media
427	Succ pra	Succisa pratensis
430	Tara agg	Taraxacum agg.
845	Thym dru	Thymus drucei (Thymus praecox arcticus)
441	Tori jap	Torilis japonica
446	Trif dub	Trifolium dubium

448	Trif pra	Trifolium pratense
449	Trif rep	Trifolium repens
841	Trip mar	Tripleurospermum maritimum
458	Ulex eur	Ulex europaeus
462	Urta dio	Urtica dioica
463	Vacc myr	Vaccinium myrtillus
467	Vero arv	Veronica arvensis
469	Vero cha	Veronica chamaedrys
471	Vero off	Veronica officinalis
490	Vero per	Veronica persica
472	Vero ser	Veronica serpyllifolia
477	Vici sep	Vicia sepium
482	Viol pal	Viola palustris
849	Viol r/r	Viola riviniana/reichenbachiana

MOSSES/LICHENS :

850	Brac sp.	Brachythecium sp.
512	Clad imp	Cladonia impexa
106	Clad pyx	Cladonia pyxidata/coccifera
513	Clad unc	Cladonia uncialis
519	Dicr het	Dicranella heteromalla
131	Dicr sco	Dicranum scoparium
161	Eurh sp.	Eurhynchium spp.
216	Hylo spl	Hylocomium splendens
222	Hypn cup	Hypnum cupressiforme
530	Loph sp.	Lophocolea spp.
280	Mniu hor	Mnium hornum
282	Mniu und	Mnium undulatum
535	Pell sp.	Pellia spp.
314	Plag und	Plagiothecium undulatum
318	Pleu sch	Pleurozium schreberi
331	Poly com	Polytrichum commune
843	Poly jun	Polytrichum juniperinum
279	Pseu pur	Pseudoscleropodium purum
543	Rhac lan	Rhacomitrium lanuginosum
364	Rhyt lor	Rhytidiadelphus loreus
365	Rhyt squ	Rhytidiadelphus squarrosus
558	Spha g/f	Sphagnum (green/fat)
559	Spha g/t	Sphagnum (green/thin)
561	Spha r/t	Sphagnum (red/thin)
439	Thui tam	Thuidium tamariscinum

ITE

March 1991

Quality control and quality assurance.

COUNTRYSIDE SURVEY 1990

FIELD SURVEY QUALITY CONTROL AND QUALITY ASSURANCE

1. Countryside Survey 1990 includes ITE's third major national field survey of the rural environment. As part of a continuous process of improvement in methods and standards of field survey, greater emphasis than before has been focussed on quality assurance. In planning the current year's survey, time has been set aside to consult widely and to analyse the collective experience of ITE staff and those in other institutions and agencies with responsibility for the planning and execution of relevant field surveys.
2. This paper summarises the main ways in which quality control has been exercised, before, during, and after the field survey.

Pre-survey

3. **1984 surveyors' recommendations on mapping:** At the conclusion of ITE's 1984 survey, a meeting was held at ITE Merlewood during which more than 30 major and minor recommendations were made for future surveys of land cover and landscape features. These were accepted and included in the planning of Countryside Survey 1990.
4. **Consultants' recommendations on vegetation recording:** As part of the DOE-sponsored "Ecological Consequences of Land Use Change" (ECOLUC) project, ITE commissioned independent consultants to evaluate ITE's methods and to make recommendations for vegetation recording in further survey work. A sub-sample of 64 ITE sites was re-visited by Bangor Ecological Consultants in 1988, and vegetation quadrats were recorded. Data were compared with those from the 1977/8 ITE survey and the accuracy of change was assessed. These results, together with a further exercise, involving an examination of observer variability, led to a series of recommendations (eg the need to permanently mark quadrats, and to employ experienced botanists). Most of the consultants' major recommendations were incorporated into the methods employed in the current survey.
5. **Internal appraisal document:** In February 1990, also resulting from ECOLUC, ITE produced a publication titled "ITE Land Classification and its application to survey: an internal appraisal". This review, which accommodated the comments of international referees, included recommendations on field survey methods, especially relating to sampling strategies (eg the need to move towards proportional sampling) and statistical aspects (eg development of suitable statistical procedures for dealing with data sets containing a high proportion of zeros). These recommendations were implemented in plans for the current survey.
6. **Qualified survey staff:** To mount a survey of the size envisaged, it was necessary for ITE to recruit 24 temporary field staff. These staff were selected from a total of over 200 applicants, most of whom had considerable experience of botanical surveys. The 18 survey teams, each of two persons, included at least one member of ITE staff or an experienced consultant, especially in the early part of the field season.
7. **Field handbook:** A comprehensive handbook was prepared, based on the lessons learned from previous surveys and the recommendations described above, and incorporating the ideas and advice of staff in government agencies and other interested organisations. The handbook included both

details of the standard methods to be used, and definitions of categories to be recorded. (The final version will be made available for general information and use.)

8. **Field training course:** A two-week training course was held immediately prior to the field season (in late May). The main objectives of the course were to teach and standardise procedures, and to assess the botanical expertise of the surveyors. More than 50% of the course was spent in the field, learning methods through practical demonstrations and experience. The course was intensive but held in comfortable surroundings with time available for a wide range of activities relating to field work (eg seminars, botanical identification, first aid courses). Staff from a range of Government agencies, academic institutions and others (eg DOE, NCC, FC, IFE, Newcastle University, consultancies) were invited to instruct surveyors in particular areas of expertise and to provide policy background to the survey. The course was particularly valuable in bringing together a large group of taxonomists who were able to work and learn together.
9. **Aerial photographic interpretation:** As an aid to field survey, aerial photographs (taken post-1984) were obtained for each sample square and comparisons made with the OS base maps. All physical boundary changes were marked on the base map, as were isolated features such as individual trees. Recognisable differences in ground vegetation types, especially in the uplands, were marked as an aid to field mapping. All extraneous information (eg house names) was deleted to give a clearer revised base map.

During survey

10. **Mixing of survey teams:** Although different regions of GB were allocated to the six ITE Research Stations, observer bias was reduced by mixing the members of survey teams within a region, at intervals. As well as reducing the chances of bias, this strategy ensured that surveyors were frequently reassessing their performance against new partners.
11. **Permanent plot marking:** To meet the overall objective concerning relocation of vegetation plots, metal marker plates were placed in field boundaries, or at the plot location in open land. Sketches were made showing the location of each plot and its marker plate, and lengths and bearings to nearby landmarks were measured and mapped. Finally, a photograph was taken showing the relationship of the quadrat to its surroundings.
12. **Supervision and expertise at each ITE Station:** To guide the field surveyors with administrative, logistical and procedural aspects, a Survey Coordinator was appointed at each ITE Station. Additional botanical expertise was also made available to allow surveyors to cross-check and confirm taxonomic identifications.
13. **Field supervision:** Apart from day-to-day supervision by Station Coordinators, each field team was visited independantly by the Project leader on five occasions throughout the season, and checks were carried out on general procedures and mapping. In addition, checks on vegetation recording and botanical identification were carried out at least four times by Dr Bunce and independant external consultants.

14. **Desk-checks of recording sheets:** Data recording booklets were returned to Merlewood on completion, throughout the season. Checks were carried out to ensure that 100% mapping has been completed in each site, and that all quadrats were recorded and samples taken. Any problems were notified immediately to Station Coordinators who ensured that omissions and errors were corrected. In the event, less than 10% of recording booklets were affected and re-visits were necessary in only two recorded cases.
15. **Newsletter:** During the survey, staff were circulated with six editions of a newsletter which were useful in updating and clarifying points in the Field Handbook, as well as providing a focal point for communication between staff.

Post-survey

16. **Coordinators' feedback meeting:** Having canvassed the views of field surveyors based at their ITE Station, the Coordinators will report back to the Project Management team in early December. Points to be discussed will include the use and interpretation of codes (and the identification of any limitations in their use), and recommendations for future surveys.
17. **Repeat survey:** A sample of 30 sites (6%) is being revisited to collect a second set of data from each. The exercise is being carried out by project management staff and consultants and allows an assessment of the quality of data-recording during the season. Because the repeat survey is being carried out at the end of the normal field season, there will be an opportunity to examine the effects of temporal variation and, in some areas, the effects of drought on vegetation. It is intended that an independent panel of expert field botanists should carry out a quantified assessment of the two sets of field records and should identify the causes of any differences between them.
18. **External checking of data recording forms:** It is intended that an independent consultant will check and comment on all data recording forms, especially as a means of validating the botanical components of the land cover mapping, and the vegetation quadrats. In addition, cross-checks will be made between the location of species recorded in the Countryside Survey 1990 and information held at the Biological Records Centre (part of the Environmental Information Centre at ITE Monks Wood).
19. **Checking of machine-readable data:** All information collected during the field survey is being entered into computers. Any typing or coding errors will be identified by double punching, or (partial) repeat digitising of cartographic data. Checks for legitimate code combinations will be carried out.

ITE Merlewood
November 1990

Annex D

Table showing the numbers of vegetation plots, by type,
in each square.

Table showing numbers of plots by type by square

Square	Quadrat type :								Total
	X	Y	B	H	S	W	R	V	
6	5	5	5	2	2	3	0	0	22
13	5	5	5	2	2	3	2	3	27
15	5	5	5	2	2	3	2	3	27
17	5	5	5	2	2	3	2	3	27
18	5	5	5	2	2	3	2	3	27
19	5	5	5	2	2	3	2	3	27
22	5	5	5	2	0	0	2	3	22
24	5	5	5	2	2	3	2	3	27
25	5	5	5	2	2	3	2	3	27
30	5	5	5	0	2	3	2	3	25
35	5	0	5	0	2	3	0	0	15
37	5	5	5	2	2	3	2	3	27
38	5	5	5	2	0	0	2	3	22
40	5	4	5	2	0	0	2	3	21
43	5	5	4	2	2	0	2	3	23
47	5	5	5	2	2	3	2	3	27
53	5	4	5	2	2	3	2	3	26
55	5	4	5	2	2	3	2	3	26
56	5	5	5	2	2	3	2	3	27
57	5	5	3	2	0	0	2	3	20
61	5	5	5	2	2	3	2	3	27
63	5	5	5	2	0	0	2	3	22
64	5	5	5	1	2	0	2	3	23
68	5	5	4	0	0	0	0	0	14
71	5	5	5	2	2	3	2	3	27
73	5	5	4	2	2	3	2	3	26
75	5	5	5	2	2	3	2	3	27
76	5	5	5	2	2	3	2	3	27
77	5	5	5	2	2	3	2	3	27
86	5	5	5	2	2	3	2	3	27
87	5	5	5	2	0	0	2	3	22
89	5	5	5	2	0	0	2	3	22
90	5	5	5	2	2	3	2	2	26
91	5	5	4	2	0	0	2	3	21
93	5	5	5	2	2	3	2	3	27
99	5	5	5	2	2	3	2	3	27
101	5	5	5	2	2	3	2	3	27
102	5	5	5	2	2	3	2	3	27
104	5	5	5	2	2	3	2	3	27
108	4	3	4	2	2	2	2	2	21
109	5	5	5	1	0	0	2	3	21
110	5	5	5	2	2	3	2	3	27
111	5	5	5	2	2	3	2	3	27
112	5	5	5	2	2	3	2	3	27
116	5	5	5	2	2	3	2	3	27
120	5	5	5	2	2	3	2	3	27
121	5	5	5	2	2	3	2	3	27
125	5	5	5	2	2	3	0	0	22
127	5	5	5	2	2	3	2	3	27
128	5	5	4	2	0	0	2	3	21
129	5	5	5	2	2	3	2	3	27
130	5	5	5	2	2	3	2	3	27

Square	Quadrat type :								Total
	X	Y	B	H	S	W	R	V	
131	5	5	5	2	2	3	2	3	27
135	5	5	5	2	0	0	2	3	22
138	5	5	5	2	0	0	2	3	22
143	5	5	4	2	2	3	2	3	26
145	5	3	5	2	2	3	2	3	25
146	5	5	5	2	2	3	2	3	27
147	5	5	5	2	2	0	2	3	24
152	5	5	5	2	0	0	2	3	22
155	5	5	5	2	2	3	2	3	27
160	5	5	5	2	2	3	2	3	27
161	5	5	5	2	2	3	2	3	27
162	5	5	5	0	2	3	2	3	25
164	5	5	5	2	0	0	2	3	22
176	5	5	5	2	2	3	2	3	27
179	5	5	5	2	2	3	2	3	27
180	5	5	5	2	2	3	2	3	27
182	5	5	5	2	0	0	2	3	22
184	5	5	5	2	0	0	2	3	22
188	5	5	5	2	2	1	2	3	25
189	5	5	5	2	2	1	2	3	25
191	5	5	5	2	0	0	2	3	22
193	5	5	5	0	2	2	2	3	24
195	5	5	5	2	2	3	2	3	27
199	5	5	4	0	0	0	2	3	19
202	5	5	4	0	2	3	2	3	24
203	5	5	5	2	2	3	2	3	27
204	5	5	5	2	2	3	2	3	27
205	5	5	5	2	2	3	2	3	27
208	5	5	5	2	2	3	2	3	27
209	5	5	5	2	2	3	2	3	27
212	5	5	5	0	2	3	2	3	25
214	5	5	4	2	0	0	2	3	21
215	5	5	5	2	0	0	2	3	22
224	5	5	5	2	2	3	2	3	27
225	5	5	5	2	0	0	2	3	22
230	5	5	5	2	2	3	2	3	27
232	5	5	4	0	2	3	2	3	24
234	5	5	4	2	2	3	2	3	26
241	5	5	5	2	2	3	2	3	27
242	5	5	5	2	2	3	2	3	27
244	5	5	5	2	0	0	2	3	22
251	5	5	5	2	2	3	2	3	27
258	5	5	5	2	2	3	2	3	27
260	5	5	0	0	2	3	0	0	15
263	5	5	1	0	2	3	0	0	16
269	5	5	5	2	2	3	2	3	27
270	5	5	5	2	0	0	2	3	22
273	5	5	4	2	2	3	2	3	26
279	5	5	5	2	2	3	2	3	27
281	5	5	5	2	0	1	0	0	18
284	5	5	3	2	2	3	2	3	25
286	5	5	1	0	2	3	2	3	21

Table showing numbers of plots by type by square

Square	Quadrat type :								Total
	X	Y	B	H	S	W	R	V	
291	5	5	4	2	2	3	2	3	26
294	5	5	3	2	2	3	2	3	25
295	5	5	3	2	2	3	2	3	25
296	5	5	5	2	2	3	2	3	27
300	5	5	5	2	2	3	2	3	27
301	5	5	5	2	2	2	2	3	26
305	5	5	5	2	0	0	2	3	22
307	5	5	5	2	2	0	2	3	24
308	5	5	5	2	2	3	2	3	27
310	5	5	5	2	2	3	2	3	27
311	5	5	5	2	2	3	2	3	27
316	5	5	4	2	2	3	2	3	26
317	5	5	5	2	2	3	2	3	27
321	5	5	3	0	2	3	2	3	23
324	5	5	5	2	2	3	2	3	27
325	5	5	5	2	2	3	2	3	27
326	5	5	5	2	2	3	2	3	27
328	5	5	4	2	2	3	2	3	26
331	5	5	5	2	2	3	2	3	27
333	5	5	5	2	2	3	2	3	27
335	5	5	5	2	2	3	1	2	25
336	5	5	5	2	2	3	2	3	27
339	5	5	5	2	2	3	2	3	27
341	5	4	5	2	1	3	2	3	25
347	5	5	2	2	2	2	0	0	18
348	5	5	2	0	2	3	0	0	17
351	5	5	5	2	2	3	2	3	27
352	5	5	5	2	0	2	2	3	24
353	5	5	5	2	2	3	2	3	27
354	5	5	5	2	2	3	2	3	27
355	5	5	5	2	2	3	2	3	27
357	5	5	5	2	0	0	2	3	22
358	5	5	5	2	2	3	2	3	27
359	5	5	5	2	2	3	2	3	27
364	5	5	5	2	2	3	2	1	25
366	5	5	5	2	2	3	2	3	27
367	5	5	5	2	0	0	2	3	22
368	5	5	5	2	2	3	2	3	27
369	5	5	5	2	2	3	2	3	27
377	5	5	5	2	2	3	2	3	27
380	5	5	1	0	2	3	2	3	21
383	5	5	5	2	2	3	2	3	27
384	5	5	3	2	2	3	2	3	25
385	5	5	5	2	2	3	2	3	27
391	5	5	5	0	2	3	2	3	25
393	5	5	5	2	0	0	2	3	22
395	5	5	5	2	2	3	2	3	27
396	5	5	5	2	2	3	2	3	27
398	5	5	5	0	0	0	2	3	20
400	5	5	5	2	2	3	2	3	27
402	5	5	5	2	0	0	2	2	21
407	5	5	5	2	2	3	2	3	27

Square	Quadrat type :								Total
	X	Y	B	H	S	W	R	V	
408	5	5	5	2	2	3	2	3	27
409	5	5	0	0	2	3	0	0	15
411	0	0	0	1	0	0	0	0	1
413	5	5	5	2	2	3	2	3	27
414	5	5	3	2	2	3	2	2	24
418	5	5	5	2	2	3	2	3	27
419	5	5	5	2	2	3	2	3	27
420	5	5	5	2	2	3	2	3	27
421	5	5	5	2	2	3	2	2	26
423	5	5	5	0	2	3	2	3	25
428	5	5	5	2	2	3	2	3	27
431	5	5	2	2	2	3	2	3	24
432	5	5	5	2	2	3	0	0	22
433	5	5	5	2	2	3	2	3	27
436	5	5	5	2	2	3	2	3	27
438	5	5	5	2	0	0	2	3	22
443	5	5	5	2	2	3	2	3	27
447	5	5	5	2	2	3	2	3	27
449	5	5	5	2	2	3	2	3	27
450	5	5	5	2	2	3	2	3	27
451	5	5	5	2	2	3	2	3	27
457	5	5	5	0	2	3	2	3	25
459	5	5	4	0	2	3	2	3	24
460	5	5	2	0	2	3	0	0	17
461	5	5	3	0	2	3	2	3	23
462	5	5	0	0	2	3	2	3	20
463	5	5	5	2	2	3	2	3	27
464	5	5	4	2	2	3	2	3	26
465	5	5	5	2	2	3	2	3	27
467	5	5	4	2	2	3	2	3	26
471	5	5	5	2	0	0	2	3	22
472	5	5	5	2	2	3	2	3	27
475	5	5	5	2	2	3	2	3	27
477	5	5	5	2	2	3	2	3	27
478	5	5	5	2	2	3	2	3	27
480	5	0	0	0	0	0	0	0	5
481	5	5	5	2	0	0	2	3	22
482	5	5	5	2	2	3	2	3	27
487	5	5	3	0	2	3	2	3	23
489	5	5	4	0	2	3	2	3	24
491	5	5	2	0	1	3	0	0	16
501	5	5	5	2	2	3	2	3	27
502	5	5	3	2	2	3	2	3	25
503	5	5	5	2	2	3	2	3	27
507	5	5	5	2	2	3	2	3	27
508	5	5	0	0	0	0	0	0	10
510	5	5	5	2	0	0	2	3	22
513	5	5	5	2	2	3	2	3	27
517	5	5	0	0	2	3	0	0	15
518	5	5	5	2	2	3	2	3	27
521	5	5	5	2	2	3	2	3	27
532	5	5	5	2	2	3	2	3	27

Table showing numbers of plots by type by square

Square	Quadrat type :								Total
	X	Y	B	H	S	W	R	V	
533	5	5	5	2	2	3	2	3	27
534	5	5	5	2	2	3	2	3	27
535	5	5	5	2	2	3	2	3	27
539	5	5	5	2	2	3	2	3	27
540	5	5	5	2	2	3	2	3	27
541	5	5	4	2	2	3	2	3	26
543	5	5	5	2	0	0	2	3	22
545	5	5	5	2	2	3	2	3	27
546	5	5	5	2	2	3	2	3	27
548	5	5	5	0	0	0	2	3	20
549	5	5	5	2	2	3	2	3	27
551	5	5	1	2	0	0	2	3	18
552	5	5	5	2	2	3	2	3	27
555	5	5	5	2	2	3	2	3	27
558	5	5	3	1	2	3	2	3	24
561	5	5	5	2	2	3	2	3	27
563	5	5	5	2	2	3	2	3	27
565	5	5	5	2	2	3	2	3	27
569	5	5	5	2	2	3	2	3	27
572	5	5	1	2	2	3	2	3	23
573	5	5	5	2	2	2	2	3	26
575	5	5	5	2	2	3	2	3	27
576	5	5	5	2	2	3	2	3	27
577	5	5	5	2	2	3	2	3	27
579	5	5	5	2	2	3	2	3	27
585	5	5	3	2	2	3	2	3	25
587	5	5	4	2	2	0	2	3	23
588	5	5	0	0	2	3	0	0	15
589	4	5	4	2	2	3	2	3	25
591	5	5	5	1	0	0	2	3	21
592	5	5	5	2	2	3	2	3	27
594	5	5	5	2	2	3	2	3	27
595	5	5	5	2	0	0	2	3	22
600	5	5	3	2	2	3	2	3	25
602	5	5	2	0	2	3	2	3	22
603	5	5	5	2	2	3	2	3	27
604	5	5	5	2	0	0	2	3	22
607	5	5	5	2	2	3	2	3	27
609	5	5	5	2	2	0	2	3	24
610	5	5	5	2	2	3	2	3	27
617	5	5	3	2	2	3	2	3	25
619	5	5	4	2	2	3	2	3	26
624	5	5	5	2	2	3	2	3	27
625	5	5	5	2	2	3	0	0	22
626	5	5	5	2	2	3	2	3	27
627	5	5	5	2	2	3	2	3	27
631	5	5	5	2	2	3	2	3	27
632	5	5	5	2	2	3	2	3	27
634	5	5	5	2	2	3	2	3	27
637	5	5	5	2	2	3	2	3	27
640	5	5	5	2	2	3	2	3	27
642	5	5	4	2	2	3	2	3	26

Square	Quadrat type :								Total
	X	Y	B	H	S	W	R	V	
644	5	5	3	0	2	3	0	0	18
646	5	5	1	0	2	3	2	3	21
648	5	5	5	2	2	3	2	3	27
653	5	5	5	2	2	3	2	3	27
654	5	5	5	2	2	2	2	3	26
656	5	5	5	2	2	3	2	3	27
657	5	5	5	2	2	3	2	3	27
658	5	5	2	0	2	3	0	0	17
659	5	5	0	0	2	3	0	0	15
662	5	5	5	2	0	0	2	3	22
666	5	5	5	2	0	0	2	3	22
671	5	5	5	2	2	3	2	3	27
672	5	5	5	2	2	3	2	3	27
673	5	5	5	0	2	3	0	0	20
674	5	5	5	0	2	3	0	0	20
676	5	5	5	2	0	0	2	3	22
678	5	5	4	2	2	0	2	3	23
679	5	5	5	2	2	3	2	3	27
682	5	5	5	2	2	1	2	3	25
684	5	5	1	0	2	3	0	0	16
691	5	5	5	0	0	0	2	3	20
692	4	4	4	2	1	3	2	3	23
695	5	5	5	2	0	0	2	3	22
698	5	5	5	2	2	0	2	3	24
699	5	5	5	2	2	3	2	3	27
701	5	5	4	0	0	0	2	0	16
702	5	5	5	2	2	3	2	3	27
703	5	5	4	2	2	3	2	3	26
704	5	5	5	2	2	3	2	3	27
705	5	5	0	0	2	3	0	0	15
708	5	5	0	0	2	3	0	0	15
713	5	5	5	2	2	3	2	3	27
716	5	5	5	2	2	3	2	3	27
721	5	5	5	2	2	3	2	3	27
723	5	5	5	2	2	3	2	3	27
724	5	5	5	0	2	0	2	3	22
726	5	5	0	0	2	3	0	0	15
729	5	5	5	2	0	0	2	3	22
732	5	5	2	2	2	3	2	3	24
733	5	5	5	0	2	3	0	0	20
735	5	5	5	2	2	3	2	3	27
737	5	5	5	2	2	3	2	3	27
743	5	5	5	2	2	3	2	3	27
748	5	5	5	0	2	3	0	0	20
751	5	5	5	0	2	3	2	3	25
753	5	5	4	2	2	3	2	3	26
756	5	4	4	2	2	3	2	3	25
758	5	5	0	0	2	3	2	3	20
761	5	5	5	2	2	3	0	0	22
763	5	5	5	0	2	3	2	3	25
765	5	5	1	2	2	3	2	3	23
766	5	5	0	0	2	3	0	0	15

Table showing numbers of plots by type by square

Square	Quadrat type :								Total
	X	Y	B	H	S	W	R	V	
769	5	5	4	0	2	3	2	3	24
770	5	5	3	0	2	3	0	0	18
772	5	5	0	0	2	2	0	0	14
773	5	5	2	0	2	3	0	0	17
774	5	5	1	0	2	3	2	3	21
775	5	5	5	0	2	3	2	3	25
777	5	5	5	2	2	3	2	3	27
782	5	5	3	0	2	3	0	0	18
783	5	5	3	0	2	3	2	3	23
784	5	5	5	0	2	3	0	0	20
785	5	5	2	0	2	3	2	3	22
786	5	5	1	0	2	3	2	3	21
787	5	5	0	0	2	3	2	3	20
789	5	5	5	2	2	3	2	3	27
790	5	5	5	0	2	3	0	0	20
791	5	5	0	0	2	3	0	0	15
794	5	5	3	2	0	0	2	3	20
796	5	3	5	0	2	2	2	3	22
800	5	5	4	2	2	3	2	3	26
804	5	5	1	0	2	3	0	0	16
808	5	5	5	2	2	3	2	3	27
809	5	5	1	0	2	3	2	3	21
810	5	3	5	2	2	3	2	3	25
814	5	5	3	0	2	3	0	0	18
816	5	5	5	0	1	2	0	3	21
817	5	5	4	0	2	3	2	3	24
819	5	5	3	2	2	3	2	3	25
820	5	5	0	0	2	3	0	0	15
823	5	5	5	0	2	3	0	0	20
825	5	5	5	0	2	3	2	3	25
826	5	5	5	2	2	3	2	3	27
827	5	5	5	2	2	3	2	3	27
828	5	5	5	2	2	3	2	3	27
832	5	5	0	0	2	3	2	3	20
835	5	5	2	2	2	3	2	3	24
837	5	5	0	0	2	3	2	3	20
838	5	5	5	2	2	3	2	3	27
839	5	5	3	2	2	3	2	3	25
840	5	5	5	2	2	3	2	3	27
843	5	5	2	0	2	2	2	0	18
844	5	5	3	0	2	3	2	3	23
845	5	5	5	0	0	0	2	3	20
847	5	5	4	0	2	3	0	0	19
849	5	5	5	2	0	0	2	3	22
853	5	4	1	0	2	3	2	3	20
861	5	5	5	0	2	3	2	3	25
864	5	5	5	2	2	3	2	3	27
867	5	5	3	0	2	3	2	3	23
868	5	5	5	0	2	3	2	3	25
873	5	5	4	0	2	3	2	3	24
874	5	5	0	0	2	3	0	0	15
877	5	5	5	2	2	3	2	3	27

Square	Quadrat type :								Total
	X	Y	B	H	S	W	R	V	
883	5	5	5	2	2	3	2	3	27
886	3	2	2	0	1	2	0	1	11
887	5	5	0	0	2	3	0	0	15
889	5	5	0	0	2	3	2	0	17
890	5	4	0	0	2	3	0	0	14
893	5	5	4	2	2	3	2	3	26
898	5	4	5	0	2	3	2	3	24
903	5	5	0	0	2	3	0	0	15
906	5	5	0	0	2	3	0	0	15
909	5	5	5	2	2	3	2	3	27
910	5	5	3	2	2	3	2	3	25
912	5	5	5	2	2	3	2	3	27
915	5	5	0	0	2	3	0	0	15
920	5	5	1	0	2	3	2	3	21
921	5	5	0	0	2	3	2	3	20
922	5	5	2	0	2	3	2	3	22
926	5	5	5	0	2	3	2	3	25
928	5	4	5	0	2	3	2	3	24
929	5	4	5	2	2	2	2	3	25
930	5	5	4	0	2	3	2	3	24
931	5	0	5	2	2	3	2	3	22
932	5	5	0	0	2	3	0	0	15
933	5	5	2	0	2	3	2	3	22
935	5	2	4	0	2	3	2	3	21
937	5	5	3	0	2	3	0	0	18
938	5	5	0	0	2	3	0	0	15
941	4	1	0	0	2	3	0	0	10
944	2	5	2	1	0	2	1	2	15
945	3	5	5	0	2	3	2	3	23
949	5	5	4	0	2	3	2	3	24
950	5	5	4	0	2	3	2	3	24
951	5	5	0	0	2	3	0	0	15
952	5	5	2	0	2	3	2	3	22
953	5	5	0	0	2	3	0	0	15
955	5	5	1	0	2	3	0	0	16
956	5	5	0	0	2	3	0	0	15
958	5	5	4	0	2	3	2	3	24
962	5	5	5	0	2	3	2	3	25
966	5	5	0	0	2	3	0	0	15
968	5	5	0	2	2	3	0	0	17
970	5	5	5	0	2	3	2	3	25
972	5	5	0	0	2	3	0	0	15
974	5	5	0	0	2	3	0	0	15
978	5	5	0	0	2	3	0	0	15
979	5	5	0	0	2	3	0	0	15
980	5	5	5	0	2	3	2	3	25
982	5	5	5	0	2	3	2	3	25
983	5	5	1	0	2	3	0	0	16
987	5	5	0	0	2	3	0	0	15
990	5	5	0	0	2	3	0	0	15
991	5	5	1	0	2	3	0	0	16
994	5	5	5	2	2	3	2	3	27

Table showing numbers of plots by type by square

Square	Quadrat type :								Total
	X	Y	B	H	S	W	R	V	
995	5	5	0	0	2	3	0	0	15
998	5	5	0	0	2	3	0	0	15
1000	5	5	5	0	1	1	1	0	18
1005	5	5	0	0	2	3	0	0	15
1012	5	5	0	0	2	3	0	0	15
1015	5	1	0	0	1	2	1	0	10
1017	5	5	0	0	0	0	2	3	15
1020	5	5	0	0	2	3	0	0	15
1025	5	5	0	0	2	3	0	0	15
1028	5	5	0	0	2	3	2	3	20
1029	5	5	0	0	2	3	0	0	15
1034	5	5	0	0	2	3	0	0	15
1035	5	5	1	0	2	3	2	3	21
1038	5	5	5	0	2	0	2	3	22
1039	5	5	5	0	2	3	2	3	25
1041	5	5	0	0	2	3	0	0	15
1043	5	2	5	0	2	2	2	3	21
1044	5	5	0	0	2	3	0	0	15
1046	5	5	0	0	2	3	0	0	15
1047	5	5	0	0	2	3	0	0	15
1048	5	5	0	0	2	3	0	0	15
1052	5	5	0	0	0	0	0	0	10
1054	5	5	4	0	2	3	2	3	24
1056	5	5	1	0	2	3	2	3	21
1057	5	5	0	0	2	3	2	3	20
1058	5	5	3	0	2	3	2	3	23
1060	5	5	5	0	2	3	2	3	25
1063	5	5	0	0	2	3	0	0	15
1064	5	5	0	0	2	3	0	0	15
1067	5	5	0	0	2	3	0	0	15
1070	5	5	0	0	2	3	0	0	15
1072	5	5	5	0	2	3	2	3	25
1075	5	5	3	0	2	3	2	3	23
1077	5	5	3	0	2	3	2	3	23
1080	5	2	4	2	2	2	2	3	22
1082	5	5	4	0	2	3	2	3	24
1084	5	5	3	0	2	3	2	3	23
1087	5	3	0	0	0	1	0	0	9
1090	5	5	0	0	2	3	0	0	15
1092	5	5	0	0	2	3	2	3	20
1093	5	5	4	0	2	3	2	3	24
1098	5	5	3	0	2	3	2	3	23
1099	5	5	5	0	2	3	2	3	25
1102	5	5	4	0	2	3	2	3	24
1104	5	5	1	0	2	3	0	0	16
1113	5	5	2	0	2	3	2	3	22
1115	5	5	1	0	2	3	0	0	16
1118	5	5	3	0	2	3	2	3	23
1121	5	5	0	0	2	3	0	0	15
1122	5	5	3	0	2	3	2	3	23
1125	5	5	0	0	2	3	0	0	15
1130	5	5	0	0	2	3	0	0	15

Square	Quadrat type :								Total
	X	Y	B	H	S	W	R	V	
1131	5	5	0	0	2	3	0	0	15
1137	5	5	0	0	2	3	0	0	15
1138	5	5	4	0	2	3	2	3	24
1142	5	5	0	0	2	3	2	3	20
1146	5	5	0	0	2	3	0	0	15
1148	5	5	2	0	0	2	2	3	19
1149	5	5	0	0	0	0	0	0	10
1150	5	5	0	0	2	3	0	0	15
1152	5	5	0	0	2	3	0	0	15
1155	5	5	0	0	2	3	2	3	20
1157	5	5	0	0	2	3	0	0	15
1159	5	5	0	0	2	3	0	0	15
1162	5	5	0	0	2	3	0	0	15
1163	4	4	5	2	1	2	2	3	23
1166	5	5	2	0	2	3	0	0	17
1167	5	5	0	0	2	3	0	0	15
1172	5	5	3	0	2	3	2	3	23
1174	5	5	0	0	0	0	0	0	10
1175	5	5	0	0	2	3	0	0	15
1181	5	5	0	0	2	3	0	0	15
1184	5	5	4	0	0	0	2	3	19
1186	5	5	5	0	2	0	2	3	22
1187	5	5	4	0	2	3	2	3	24
1188	5	5	5	0	2	3	2	3	25
1190	5	5	4	0	2	3	2	3	24
1193	5	5	3	0	2	3	2	3	23
1197	5	5	1	0	0	0	2	3	16
1200	5	5	4	0	2	3	2	3	24
1202	5	5	3	0	1	1	2	3	20
1205	5	5	2	0	2	3	0	0	17
1206	5	5	1	0	2	3	0	0	16
1208	5	5	1	0	2	3	0	0	16
1209	5	5	0	0	0	0	0	0	10
1212	5	5	4	0	2	3	2	3	24
1214	5	5	0	0	2	3	0	0	15
1216	5	5	5	2	2	3	2	3	27
1219	5	5	0	0	2	3	0	0	15
1220	5	5	5	0	2	3	2	3	25
1226	5	5	5	2	2	3	2	3	27
1228	5	5	5	0	0	0	2	3	20

PLOT TOTALS

X plots 2523

Y plots 2478

B plots 1816

H plots 576

S plots 875

W plots 1275

R plots 782

V plots 1159

All plots 11484

