

Annexes to Proofs of Evidence (Appendices 1-6)

Appendix 1. Appeal by ECC International Limited re: Proposed extension of waste tip at Newbridge Clay Works.

Annexes to English Nature's Proofs of Evidence

- EN1 Glossary of terms used by English Nature.
- EN2 Function of English Nature.
- EN3 Citation for Brocks Farm Site of Special Scientific Interest.
- EN4 Devon Wildlife Trust report on MG5 grassland in Devon (May 1997).
- EN5 Photographs.
- EN6 Unimproved Neutral Grasslands Habitat Statement, *Biodiversity: The UK Steering Group Report, Volume 2: Action Plans*, p 280, HMSO 1995.
- EN7 Inspector's Report, *Proposed housing development, Senhouse Dock, Maryport Harbour*, 19 November 1992, Departments of the Environment, North West Regional Office.
- EN8 English Nature's Position Statement on SSSIs.
- EN9 S J Leach, C M Pulteney, P Eckersley, C Dixon, *Progress report of botanical monitoring: Brocks Farm SSSI & Transplant sites, Devon (1996 update)*, English Nature, March 1997.
- EN10 C W D Gibson, *Grassland translocation: Brocks Farm*, Bioscan (UK) Limited, March 1997.
- EN11 MG5 Floristic Table from J S Rodwell (ed), *British plant communities, volume 3: Grasslands and montane communities*, pp 64-65, Cambridge University Press, 1992.
- EN12 Key to Mesotrophic Grassland Communities from J S Rodwell (ed), *British Plant Communities Volume 3: Grasslands and montane communities*, pp v-vi, Cambridge University Press, 1992.
- EN13 NVC quadrat data for Brocks Farm Site of Special Scientific Interest, May 1997.
- EN14 Extract from R G Jefferson and H J Robertson, Lowland Grassland: wildlife value and conservation status, p 4, *English Nature Research Reports*, No. 169, 1996.
- EN15 Extract from R M Fuller. The changing extent and conservation interest of lowland grasslands in England and Wales: A review of grassland surveys 1930-1984, *Biological Conservation*, 40(1987), 281-300.
- EN16 Extract from R D Porley and P F Ulf-Hansen, Unimproved Neutral Grassland in Dorset: survey and conservation. *Proceedings of the Dorset Natural History and Archaeological Society*, pp 161-165, Vol 113, 1991.

- EN17 Extract from R G Jefferson, H J Robertson, J Marsden, and A J L Fraser, Lowland Grassland in England: Conservation of a declining resource in Worcestershire. *In: R.J. HAGGER AND S. PEEL, eds. Grassland management and nature conservation*, BGS Occasional Symposium No 28, p 202, British Grassland Society, Reading, 1994.
- EN18 Extract from D A Ratcliffe (ed), *A Nature Conservation Review, Volume 1*, p194, Cambridge University Press, 1977.
- EN19 Extract from J Greig, The palaeoecology of some British hay meadow types, in W Van Zeist and W A Casparie (eds), *Plants and ancient men, studies in palaeoethnobotany*, p 213, A A Baikema, Rotterdam, 1984.
- EN20 Extract from *Guidelines for selection of Biological SSSIs*, pp 26, 92 and 94, Nature Conservancy Council, Peterborough, 1989.
- EN21 Extract from *Biodiversity: The Uk Steering Group Report, Volume 1: Meeting the Rio Challenge*, pp 23-24, HMSO 1995.
- EN22 Details of the Ministry of Agriculture, Fisheries and Food's Countryside Stewardship scheme.
- EN23 Extract from D A Rtcliffe (ed), *A Naure Conservation Review, Volume 1*, pp 6-10, Cambridge Univesity Press, 1977.
- EN24 Extract from P Anderson, *Roads and Nature Conservation: Guidance on impacts, mitigation and enhancement*, pp 17 and 19, English Nature Publicity and Marketing Branch and Penny Anderson Associates, Peterborough, 1994.

Appendix 2 (EN 3)CITATION SHEET

COUNTY: DEVON SITE NAME: BROCKS FARM

DISTRICT: TEIGNBRIDGE

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981 (as amended)

Local Planning Authority: Teignbridge District Council, Devon County Council

National Grid Reference: SX 842758 Area: 1.5 (ha) 3.7 (ac)

Ordnance Survey Sheet 1:50,000: 191 1:10,000: SX 87 NW

Date Notified (Under 1949 Act): - Date of Last Revision: -

Date Notified (Under 1981 Act): 1986 Date of Last Revision:

Other Information:

New site.

Description and Reasons for Notification:

This site consists of a single herb-rich field supporting a grassland community with a restricted distribution in Britain and one which is now very scarce in Devon. The field supports the largest known colony of Green-winged Orchid (Orchis morio) in the county.

The field lies on a very gentle slope running down to a tree-lined stream to the north-east. It has clayey soils, moderately freely draining, and lies over the Bovey Beds.

The sward is characterised by frequent Common Knapweed (Centaurea nigra), and Crested Dog's-tail (Cynosurus cristatus), although a wide variety of other herbs and grasses typical of neutral grassland are also present, such as Meadow Vetchling (Lathyrus pratensis), Oxeye Daisy (Leucanthemum vulgare), Spring-sedge (Carex caryophyllea), Flea-sedge (C. pulicaris), Quaking-grass (Briza media) and Heath-grass (Danthonia decumbens). Several large colonies of Corky-fruited Water-dropwort (Oenanthe pimpinelloides), a nationally-uncommon species, occur.

The field is particularly notable for its orchids, especially for several thousand individuals of the Green-winged Orchid, a very local plant in Devon. Other species to be found are Heath spotted-orchid (Dactylorhiza maculata), Southern Marsh-orchid (D. praetermissa) and two species with a restricted distribution in Devon, Common spotted-orchid (D. fuchsii) and Early Marsh-orchid (D. incarnata).

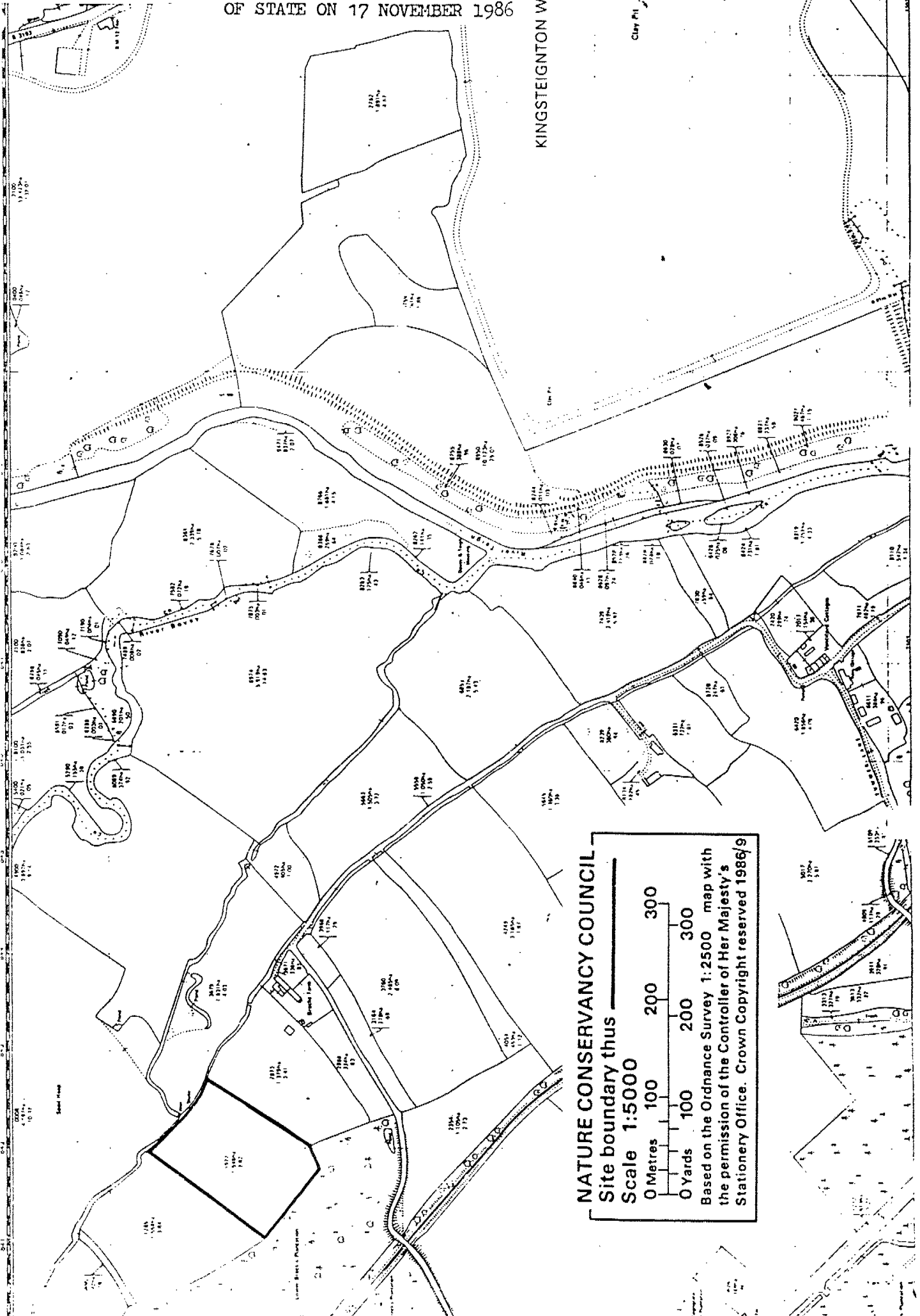
SITE NOTIFIED TO SECRETARY OF STATE ON 17 NOVEMBER 1986

ROCKS FARM EVON

SITE NOTIFIED TO SECRETARY
OF STATE ON 17 NOVEMBER 1986

KINGSTEINGTON WEST V

Clay Pit



NATURE CONSERVANCY COUNCIL
Site boundary thus ———
Scale 1:5000
0 Metres 100 200 300
0 Yards 100 200 300
Based on the Ordnance Survey 1:2500 map with
the permission of the Controller of Her Majesty's
Stationery Office. Crown Copyright reserved 1986/9

Appendix 3 (Extracts from EN 7)

(From: Department of the Environment North West Regional Office 1992. *Inspectors report: Proposed Housing Development, Senhouse Dock, Maryport Harbour, Maryport, Cumbria. Appeal by Maryport Developments Limited. Reference EM/JVG/MD/BT/236/PNW/5161/219/3.*)

- 15.28 *At the inquiry the discussion of possible measures to mitigate the effects of the proposal upon the SSSI concentrated upon the offer of MDL to translocate selected parts of EA1 to receptor sites, although the supporters of the scheme emphasised that their case does not rely upon this.*
- 14.29 *Translocation must carry with it certain risks. Those risks can be reduced but not removed altogether by careful planning and execution.*
- 14.30 *The assessor has carefully considered the factors both in favour and against the successful translocation of the key species on the SSSI. With the expertise available and with a well planned approach he is of the view that it may be possible to translocate successfully individual plant species. Greater uncertainty surrounds the translocation of the small blue butterfly; a view shared by the supporters of the scheme.*
- 14.31 *I can understand and appreciate the reservations of EN about the risk of loss of individual plants and animals but it seems to me that there could well be a reasonable prospect of successfully moving some of the pyramidal orchids and possibly some of the colony of small blue butterflies. However, in my view, the objective of any translocation scheme in the circumstances of this case must be to replicate as closely as possible the nature conservation interest and value of EA1. This means establishing colonies of pyramidal orchid and small blue butterfly of similar strength and chance of long term survival as those existing, as well as the same wide range of plants and large areas of species rich vegetation. Given the acknowledged difficulties in translocating the key species on the SSSI and the physical conditions on the embankment I consider the prospect of successfully achieving this wider objective to be relatively poor.*
- 14.32 *Whatever the chances of a successful translocation programme I have sympathy with the view expressed by EN that translocation should not be considered as a substitute for in-situ conservation. I certainly have some difficulty in agreeing with the supporters that translocation would avoid demonstrable harm to the SSSI. It seems to be in-escapable that the larger part of the SSSI would still be lost. I do not believe that even a highly successful translocation, which may create a new habitat but most likely not be capable of re-creating the SSSI, would avoid that harm. To my mind translocation is essentially a technique for saving flora and fauna from sites where development is going ahead; a "rescue operation" as the assessor describes it. Such circumstances may be where the case for development is overriding and nothing would be lost by taking the risk of moving species. As a means of allowing development I see it at best as a technique which may be applicable where the chances of a successful translocation are sufficient to tip a finely balanced case in favour of allowing development to go ahead. To my mind to regard it as any more than this would seriously undermine the intent of national and local policy to protect the nature conservation value of SSSIs.*
- 14.59 *In these circumstances I believe that whatever weight can be attached to the need for the development it is certainly not sufficient to outweigh the serious harm to the SSSI, to justify the risk of the translocation of rare species, to override the harm to the*

conservation area or to amount to material circumstances so strong as to warrant the granting of permission contrary to planning policy for the area. In my view planning permission should be refused.

PROGRESS REPORT OF BOTANICAL
MONITORING

**BROCKS FARM SSSI
& TRANSPLANT SITES, DEVON
(1996 UPDATE)**

S.J.Leach, C.M.Pulteney, P.Eckersley & C.Dixon

March 1997

Report Title: **Progress report of botanical monitoring - Brocks Farm SSSI and transplant sites, Devon (1996 update)**

Drafted by: S.J.Leach

Fieldworkers (1996): S.J.Leach, C.M.Pulteney, P.Eckersley, C.Dixon

Restriction: At Devon, Cornwall and Isles of Scilly Team's discretion

No. of copies: 21

Distribution: EN Okehampton office (10)
S.J.Leach, EN Taunton (2)
J.H.S.Cox, EN Slepe Farm (1)
J.Tither, EN Library, Peterborough (1)
R.Jefferson, EN Peterborough (3)
H.Robertson, EN Peterborough (1)
B.Johnson, EN Taunton (2)
EN Library, Taunton (1)

CONTENTS

SUMMARY	1
1. INTRODUCTION	3
1.1 Background to the 1988 transplantation at Brocks Farm	3
1.2 The NCC/EN monitoring programme	3
1.3 ECCI proposal to transplant the SSSI	4
1.4 The present report - aims and structure	4
2. RESULTS - PRESENTATION OF THE BOTANICAL DATA	7
2.1 The SSSI 'Control' Field	7
2.1.1 Frequency of species within the RM-Q dataset	7
2.1.2 FIBS analysis of changes, 1988-1996	9
2.2 The Turf Transplant	10
2.2.1 Frequency of species within the RM-Q dataset	10
2.2.2 FIBS analysis of changes, 1988-1996	12
2.3 The Littered Plot	13
2.3.1 Frequency of species within the RM-Q dataset	13
2.3.2 FIBS analysis of changes, 1988-1996	15
3. A COMPARISON OF FLORISTIC CHANGES IN THE THREE MONITORING AREAS	17
3.1 Importance of the SSSI grassland as a 'control'	17
3.2 Changes in the turf transplant in comparison with changes in the SSSI 'control' grassland	17
3.2.1 Species-richness	17
3.2.2 Frequency of individual species	18
3.2.3 FIBS analyses	20
3.2.4 An examination of the changes in terms of NVC categorisation and performance of species known to be characteristic of particular NVC (sub-) communities	22
3.3 Changes in the littered plot in comparison with changes in the SSSI 'control' grassland	24
3.3.1 Species-richness	24
3.3.2 Frequency of individual species	24
3.3.3 FIBS analyses	26

3.3.4	An examination of the changes in terms of NVC categorisation and performance of species known to be characteristic of particular NVC (sub-) communities	28
4.	CONCLUSIONS & DISCUSSION	31
4.1	The SSSI 'Control' Field	31
4.1.1	Floristic changes	31
4.1.2	Functional changes	31
4.1.3	Likely reasons for the observed changes	32
4.2	The Turf Transplant	32
4.2.1	Floristic changes	32
4.2.2	Functional changes	32
4.2.3	Likely reasons for the observed changes	33
4.2.4	Has transplantation 'worked'?	34
4.3	The Littered Plot	35
4.3.1	Floristic changes	35
4.3.2	Functional changes	35
4.3.3	Likely reasons for the observed changes	36
4.3.4	Has transplantation 'worked'?	37
5.	ACKNOWLEDGEMENTS	38
6.	REFERENCES	40
7.	GLOSSARY	43
	TABLES 1-7	
	FIGURES 1-26	
	ANNEXES 1-3	

SUMMARY

1. In 1985 English China Clays Limited (now English China Clays International (ECCI)) submitted a planning application to extend the area of winning and working of ball clay, and the tipping of waste, at its Newbridge Works, near Chudleigh Knighton, Devon. It included a proposal to tip waste over two fields at Brocks Farm, known to be of significant botanical interest. The planning permission granted in 1986 required that vegetation from one field be transplanted to another site, and that the other field (notified as a SSSI) be conserved *in situ*.
2. Transplantation was carried out in 1988, partly as large turves (the 'turf transplant'), and partly as stripped topsoil and turf fragments (the 'littered' transplant). Prior to transplantation, NCC (now English Nature) commenced long-term botanical monitoring of both the SSSI (the 'control') and the vegetation to be transplanted.
3. This report presents the results of annual monitoring between 1988 and 1996. With the aid of the computer package FIBS, it gives an updated account of botanical changes occurring in the SSSI, turf transplant and 'littered plot', highlighting the emerging floristic differences between the three areas, and reassessing the extent to which transplantation has affected the botanical composition and ecological characteristics of the grassland community.
4. Some changes have been common to all areas, including an overall increase in species-richness, increased representation of low-growing species having a basal (rosette) or semi-basal canopy structure, decreased representation of tall-growing species, and increased representation of species capable of only limited lateral vegetative spread. These common changes are associated with the reinstatement of hay-meadow management in the late 1980s, and indicate that many floristic and functional consequences of management have been similar in both the SSSI and the transplanted grasslands.
5. Initially the turf transplant showed little difference from the SSSI 'control', but many species doing well in the SSSI have failed to thrive in the transplanted sward, including some which help to characterise the grassland as NVC community MG5/MG5c. MG5 constants and MG5c preferentials have generally done less well in the turf transplant than in the SSSI. It is suggested that the turf transplant and SSSI may be diverging in terms of botanical composition.
6. FIBS analyses of turf transplant data revealed several changes in contrast to the SSSI. There was a marked decline in representation of stress-tolerators, while representation of species typically associated with species-rich communities failed to increase. There was a decreased representation of species considered to be declining nationally, a decrease of April- and June-flowering species, and an increase of those typically flowering in May.
7. While the turf transplant still contains species and features of interest, it is nevertheless a different grassland from the one it would have been had it been conserved *in situ*. The turf transplant has under-performed (in comparison with the SSSI) on a whole range of criteria, leading to the conclusion that transplantation has failed in its objective to safeguard the original grassland community.

8. In contrast to the turf transplant, the littered transplant underwent an immediate change in botanical composition, with an influx of ruderal species and sharp decline in frequency of occurrence of some species which had been prominent in the pre-transplant sward.
9. Floristic differences between the SSSI and littered plot have generally become less pronounced through time, but a strong element of 'non-MG5' species remains. Several post-transplant colonists have persisted, including *Ulex europaeus* (Gorse) which, in the absence of continued cutting-and-grazing management, would become dominant over large areas of the littered transplant.
10. FIBS analyses revealed some marked functional differences between the SSSI and littered plot: a decreased representation of CSR-strategists, an increase of species associated with 'spoil' and 'wasteland' habitats, and a decrease of species having high amounts of nuclear DNA - the last of these possibly linked to a decline of May-flowering species and an increase of those normally flowering in June and July.
11. Many floristic changes in the littered plot have differed markedly from those in the SSSI and turf transplant. While the littered transplantation is an interesting example of habitat *creation*, it has nevertheless clearly failed in its objective to safeguard the original grassland community.
12. It is concluded that both transplants have failed to protect the botanical composition and ecological characteristics of the grassland community. Littering led to immediate damage followed by partial recovery, but even in 1996 (eight years after transplant) substantial differences are still evident between the littered plot and SSSI 'control'. The turf transplant, on the other hand, appeared to change very little initially, although in recent years its 'under-performance' in comparison with the SSSI - and its floristic divergence from the SSSI - indicates that the sward has suffered long-term damage.

1. INTRODUCTION

1.1 Background to the 1988 transplantation at Brocks Farm

1.1.1 In 1985 English China Clays Limited (ECC) (now ECC International (ECCI)) submitted a planning application to extend the area of winning and working of ball clay, and the tipping of waste, at its Newbridge Works, near Chudleigh Knighton, Devon. The application included a proposal to tip waste over two adjoining fields at Brocks Farm, known from a 1978 survey - commissioned by the Nature Conservancy Council (NCC) - to be of significant botanical interest.

1.1.2 NCC objected to the fields being tipped upon, and after much discussion a compromise was reached: the planning permission granted in 1986 allowed for tipping to occur on one of the fields (O.S. 1285), the other (O.S. 1977) being left untouched. Furthermore, as a condition of the planning permission it was agreed that prior to tipping, 0.4 ha of turf from the field to be tipped on should be re-located to a site nearby, with vegetation and topsoil from the remaining area being moved by 'littering'^[§1] to an equivalent-sized area adjacent to the turf transplant receptor site². It was also agreed that the field left *in situ* would be managed by ECC, with advice from NCC (now English Nature (EN)), to conserve its ecological interest³. This field was subsequently notified as a Site of Special Scientific Interest (SSSI).

1.2 The NCC/EN monitoring programme

1.2.1 In September 1987 the NCC England Field Unit (EFU) carried out a baseline botanical survey of both fields (Leach, 1988), followed by the establishment of a long-term monitoring programme in May 1988, shortly before the transplantation operation was carried out by ECC. As agreed, vegetation was moved partly as large turves (the 'turf transplant') and partly as stripped topsoil and turf fragments (the 'littered' transplant). Since 1988 annual botanical monitoring has been undertaken, both of the transplanted swards and of the SSSI grassland retained *in situ* (the 'control').

¹ [§] following first use of a term in the text means that it is defined or explained in the glossary (section 7).

² Material for 'littering' came principally from that part of O.S. 1285 not transplanted as turves. It is understood that some additional material (subsoil and litter) was taken from an adjoining field (O.S. 0494) which was not subject to detailed botanical survey prior to transplantation. Throughout the study, however, our understanding has been that material used in the area encompassed by the littered *plot* was derived entirely from O.S. 1285.

³ Details of pre- and post-transplant management of the Brocks Farm grasslands are provided in Annex 1, compiled largely from information supplied by ECCI.

- 1.2.2 A report of the first five years' (1988-1992) work at Brocks Farm was produced (Leach *et al.*, 1992), followed by annual 'updates' (Leach *et al.*, 1994, 1995a., 1995b). Details of the transplantation and field methods used for botanical monitoring were presented in an earlier report (Leach *et al.*, 1992); relevant extracts from that report are given here in Annex 2 (see also Byrne (1990)).

1.3 ECCI proposal to transplant the SSSI

- 1.3.1 ECCI now wishes to further extend its tipping area, and is proposing to transplant the SSSI 'control' using similar methods to those employed in the 1988 *turf* transplant.
- 1.3.2 EN objected to the proposal, and planning permission was refused by the Local Planning Authority. ECCI appealed against this decision, and the case is to be examined at Public Inquiry in July 1997.

1.4 The present report - aims and structure

- 1.4.1 In this report we give an update of the botanical changes noted in previous progress reports, incorporating floristic data gathered in 1996, and reassess the extent to which transplantation has affected the botanical composition and ecological characteristics of the grasslands concerned. It should be noted that the floristic data have not been subjected to statistical analysis. However, detailed multivariate analyses have recently been undertaken using the computer package CANOCO 3.1 (ter Braak, 1987-1992); these are presented in a separate report (Gibson, 1997).
- 1.4.2 This progress report is structured rather differently from earlier 'update' reports, the arrangement being as follows:-
- 1.4.2.1 In Section 2, random mini-quadrat (RM-Q) ^[g] data are presented for each of the three monitoring areas in turn¹. Attention is drawn, in particular, to those species which in 1996 occurred at notably high or low frequencies in comparison with previous years. An interpretation of the floristic changes is also given, with the aid of the FIBS (Functional Interpretation of Botanical Surveys) ^[g] computer package.
- 1.4.2.2 In Section 3, floristic changes occurring in the SSSI are compared with those occurring in the transplanted grasslands. *Turf transplantation* is now being proposed by ECCI as a way of safeguarding the SSSI grassland; a comparison between the SSSI and turf transplant is thus of critical importance in any

¹ Throughout this report floristic data are for vascular plants only - bryophytes were noted in some years, but have been excluded from consideration here as they were not recorded consistently by *all* fieldworkers in *all* years.

assessment of whether such a proposal could reasonably be expected to protect the ecological interest of the SSSI.

- 1.4.2.3 In Section 4, there is a resumé of the botanical changes which have taken place in the three monitoring areas, and an assessment of their likely causes. The emphasis here is on providing an answer to the following question: “To what extent has transplantation affected the botanical composition and ecological characteristics of the grassland community?”