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The status of Dorset Heath *Erica ciliaris* in Cornwall

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The status of Dorset Heath *Erica ciliaris* in Cornwall

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and
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Forward

This report is largely derived from a joint English Nature and Cornwall Wildlife Trust study on the status of Dorset Heath (*Erica ciliaris*), the habitat and species, in Cornwall. It was based upon fieldwork in 1996 and published as a report in 1997. The current report has been updated to take account of a number of significant changes to the status of Dorset Heath in Cornwall most notably the level of protection afforded to this important habitat.

Dorset Heath falls within the definition of "Southern Atlantic Wet Heaths with *Erica ciliaris* and *Erica tetralix*" a Priority Natural Habitat Type listed on Annex 1 of the EC Habitats and Species Directive 1992. Conservation of Dorset Heath is therefore a priority of international importance for the UK. The species *Erica ciliaris* is listed in the British Red Data Book as nationally rare. It is at the northern limit of its range in the British Isles. As well as intrinsic rarity value this makes it of interest in relation to monitoring and anticipating the effects of environmental, eg. climatic, change. Within the British Isles the two strongholds of the habitat and species are Dorset and Cornwall with the former being the main centre of distribution.

This English Nature Research Report is a **State of the Environment Report** on the status of a **European Community Priority Natural Habitat** in one of its two strongholds in the UK. It documents the status of the habitat at the end of the Twentieth Century. The report illustrates how the original survey work led to English Nature, on behalf of the British Government, providing statutory protection for all the important sites for Dorset Heath in Cornwall. This represents a significant contribution to the UK Government's commitment to secure favourable conservation status for this Priority Habitat.

The next step is to maintain positive habitat management where this is already occurring on sites and to secure it where it is still needed. Over the last couple of years a number of sites have entered Government funded Environmental Land Management Schemes (ELMS) such as MAFF's Countryside Stewardship Scheme and English Nature's Wildlife Enhancement Scheme (WES) and Reserves Enhancement Scheme (RES). The latter is aimed at high quality nature conservation land managed by conservation organisations such as Wildlife Trusts. In addition due to the low level of the resource remaining efforts need to be made to re-create the habitat in suitable areas, especially where this offers the opportunity to link fragmented sites.

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Conservation Officer, Cornwall, English Nature
7 February 2000

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Lastly and perhaps most importantly, thanks are due to all of the landowners who gave permission to survey on their land, without their co-operation this study would not have been possible.

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VOLUME I

EXECUTIVE SUMMARY

1. Introduction

In this report the plant species is referred to as *Erica ciliaris*; "Dorset heath" is taken to be the habitats within which *Erica ciliaris* occurs.

Dorset Heath is a Priority Natural Habitat Type listed on Annex 1 of the EC Habitats and Species Directive 1992. The Directive uses the Corine biotopes classification. In this system Dorset heath is classified as belonging to "Southern Atlantic Wet Heaths with *Erica ciliaris* and *Erica tetralix*". The Directive defines Priority Habitats as those which are in danger of disappearance and for which the European Community has a particular responsibility because of the proportion of their natural range which falls within the Member States territories. Conservation of Dorset Heath is therefore a priority of international importance for the UK.

Erica ciliaris is a nationally rare species of considerable European importance. It has a restricted distribution both internationally, nationally and within Cornwall. This project provides a clearer understanding of the distribution and status of *Erica ciliaris* in Cornwall than has previously been available. It establishes the relative importance of each site where the species occurs and identifies adjacent areas with potential for heathland re-creation/restoration.

2. The 1996 Dorset Heath Study

Desk studies identified 41 sites in Cornwall where *Erica ciliaris* has been recorded in the past. Subsequent fieldwork rediscovered 22 of these sites. 20 are in the "Carrick Heaths" zone and 2 are on the Lizard Peninsula. 13 of the original sites could not be relocated and a further 6 sites were located but *Erica ciliaris* was not refound there.

There is currently 106.5 ha of Dorset heath in Cornwall contained within the 22 sites, although most of this is spread between 17 sites. The majority of sites are small, with only 5 supporting more than 3 ha of Dorset heath.

70 ha of the total area is dry Dorset heath, corresponding with the National Vegetation Classification (NVC) community H4 (*Ulex gallii-Agrostis curtisii* heath) and is contained within 8 sites. A further 36 ha is wet Dorset heath, corresponding to the NVC communities M16 (*Erica tetralix -Sphagnum compactum* wet heath) and M21 (*Narthecium ossifragum - Sphagnum papillosum* valley mire) (although the Cornish communities exhibit some interesting local characteristics) and this is contained within 14 sites.

There is a significant cluster of sites in the Ventongimps area, where four Dorset heath sites are in close proximity. The English Nature Heathland Re-creation Plan for Cornwall (1994) shows areas of land with the greatest potential for heathland re-creation and it is feasible to link the sites in this cluster by re-creation/restoration of such suitable areas.

3. Current Factors Affecting Dorset Heath and *Erica ciliaris* in Cornwall

Dorset Heath and *Erica ciliaris* are protected by many laws, designations and policies, both international, national and local. The EC Habitats and Species Directive (1992), its enactment into UK law through the Conservation (Natural Habitats &c.) Regulations 1994 and thereby the designation of Special Areas of Conservation (SACs) provides international protection. The Site of Special Scientific Interest (SSSI) network offers protection nationally through the Wildlife and Countryside Act (1981). The Cornwall Structure Plan and the District Wide Local Plans contain policies protecting both these international and national sites along with sites of local wildlife value, many of which are Cornwall Nature Conservation (CNC) Sites ie. sites of at least county importance for nature conservation.

Over 99.9% of the total area of Dorset heath in Cornwall falls within SSSIs; 70 % of this is also candidate SAC. 99% of the total County area is designated as CNC Site. 14% of the total area is owned by the Cornwall Wildlife Trust and the National Trust.

The most immediate threat to the survival of Dorset heath sites in Cornwall is neglect. 12% of the total area of Dorset heath in Cornwall is in immediate danger of loss due to natural succession. 1% of the area has been lost to development in the past 10 years and a further 2% is currently threatened. 1% has been damaged by forestry. Agricultural reclamation has destroyed 0.2% and is thought to threaten a further 2.7%. In the past agricultural reclamation has been responsible for massive losses.

4. Management of Existing Sites

Grazing is the traditional management but this and alternative methods, such as cutting, are difficult due to the small and fragmented nature of the sites. Burning is not generally considered suitable but winter burning can be useful in some instances, if used in conjunction with grazing.

Management under these circumstances can be expensive but financial incentives exist in the form of Countryside Stewardship, Cornwall Landscape Project Grants and management agreements, grants, and English Nature's Wildlife Enhancement Agreements and Reserves Enhancement Scheme for owners of SSSIs. It is crucial to try and make these work if favourable conservation status for the habitat is to be achieved in Cornwall and the UK.

Education is a key element in safeguarding sites. Many landowners were found to be unaware of the value of their area of Dorset heath or the fact that it requires management. However, some of these were not interested once they were informed which suggests more effort and/or different approaches may be needed with some people.

5. Re-creation

The decline of sites is so serious that restoration and management of existing sites may not be enough to ensure the favourable conservation status of *Erica ciliaris* or its habitat. Re-creation, to extend and link existing sites and create new sites, is a way forward though not a substitute for retaining and managing all the existing sites. An English Nature funded heathland re-creation plan for Cornwall has identified areas suitable for heathland re-creation and those next to sites containing *Erica ciliaris* have received a preliminary assessment of their suitability as part of this study. This indicated that the majority of sites are suitable for re-creation but need further, more detailed investigation.

6. Recommendations for Further Work

Sites for re-creation, together with priority sites for management, should be included in the action plan for lowland heathland which is due to be produced as part of the Cornwall Biodiversity Initiative.

1. INTRODUCTION

1.1. Project Objectives

- To gain a better understanding of the distribution and status of Dorset Heath and *Erica ciliaris* in Cornwall and create a clearer picture of the importance and relevant significance of particular sites that support it.
- To identify key zones or areas appropriate for re-creation or restoration using the existing Heathland Re-creation plan for Cornwall, commissioned in 1995 by English Nature.
- To gather information to underpin the production of a Species Action Plan for *Erica ciliaris* in Cornwall.

1.2 Definitions

The term "Dorset Heath" can be used to refer to both the habitat and the plant species and this can create confusion. To avoid this, in the following report, the plant species is referred to as *Erica ciliaris,* and the habitats within which *Erica ciliaris* occurs are collectively called Dorset Heath, unless otherwise stated.

1.3 Background

Erica ciliaris is listed in the United Kingdom Biodiversity Steering Group Report (1995) as a globally threatened species. It is found within one of the Priority Natural Habitat Types listed in Annex I of the Council Directive 92/43/EEC (1992) on the Conservation of Natural Habitats and of Wild Fauna and Flora (commonly referred to as the EC Habitats Directive) ie. Southern Atlantic Wet heaths with *Erica ciliaris* and *Erica tetralix.* These belong to the Atlantic heathlands category which is only found in the European Western Coastal regions with a mild humid climate. This is an internationally very restricted class of vegetation with little or no floristic affinity with heathlands in other continents. The habitat is therefore of considerable European importance and is amongst the scarcest and most threatened in Europe.

The restricted distribution of areas containing *Erica ciliaris* makes them vulnerable and over the years they have been subject to substantial reductions in area, mainly due to habitat destruction but also partly as a result of natural hybridisation (with cross-leaved heath *Erica tetralix).* Habitat is lost partly due to degradation caused by lack of management. Most of the heaths are no longer grazed and are therefore vulnerable, through abandonment, to encroachment of trees and scrub and destructive hot summer fires. However, the main causes of habitat destruction and fragmentation are coniferous afforestation, reclamation for agriculture and built development. (Moore 1962, Webb & Haskins 1980, Webb 1990, and Chapman & Rose 1994)

Despite the fact that the majority of areas nationally are protected by legislation, habitat loss still continues. The problem is now so acute that many of the remaining sites are under 100ha. These sites are now in imminent danger of disappearing completely unless measures are taken to protect them from further fragmentation. The extent of the habitat in remaining sites needs to be increased to a state where the sites become more viable, thereby helping to safeguard against the other dangers of species loss due to habitat degradation, hybridisation etc.

1.4 International Distribution

Erica ciliaris is confined to the mild, humid western coastal regions of Europe. It occurs in continental Europe: in western France, Spain and the coastal regions of Portugal. It has also been recorded from the north-west of Morocco and the Netherlands, where it is unlikely to be indigenous (Rose et al. 1996).

1.5 British Distribution

In Britain *Erica ciliaris* is nationally rare, being found in thirteen 10 Km squares since 1987 and as such is listed in the British Red Data Book of Vascular Plants (Wigginton 1999). It is restricted to heaths in South-east Dorset, West Cornwall and at single sites in Devon, Somerset and West Galway, Ireland. In all over 80 localities were still known in 1983, of which approximately two-thirds were in the plant's stronghold in Dorset. Instances of individual plants or small patches are recorded from a number of other localities including Hampshire and Anglesey but these are thought to have been planted, although some believe the Hampshire plants could have spread from Dorset. The Somerset record is from the Blackdown Hills, is very recent and includes around 0.5ha of Dorset Heath (Edgington 1999).

Erica ciliaris is on the northern edge of its range in the British Isles. It is able to grow further north but is then susceptible to winter damage. The northern range of the plant may be dictated by lower summer temperatures affecting maturation of the seed. However, there are many apparently suitable heathlands in southern Britain which do not support the plant.

1.6 Cornish Distribution

In Cornwall *Erica ciliaris* has been recorded from a total of 41 sites in the past. It is concentrated in an area known as "The Carrick Heaths": a very fragmented series of heaths to the north and north-west of Truro within the local authority District of Carrick They account for nearly 2% of the total area of heathland in the county. Isolated sites occurring outside this core area are believed to have been planted.

The Carrick Heaths appear to represent remnants of larger single site. The first OS map which was first published in 1813 using surveys dating back to 1796 illustrates this admirably. There are large areas of heathland between Truro and Redruth to the west and Newlyn/ what is now Perranporth to the north. This largely linked heathland landscape covers just about all of the now very fragmented Carrick Heaths where Dorset Heath is to be found.

1.7 Habitats and Communities

In Britain, *Erica ciliaris* generally grows on permanently or frequently waterlogged soils. In Dorset *E .ciliaris* is found in a range of communities from dry heath and acid grassland to peatland (Chapman 1975) although growth is most prolific in the wet heath zone, over shallow peat less than 2m in depth.

Erica ciliaris is listed as being present in four communities in the National Vegetation Classification (Rodwell 1991). These and the corresponding CORINE biotopes within which they are represented are given in the table below:

Table 1: NVC Communities and their Corresponding CORINE Biotopes.

NVC Community	CORINE Biotope
H3-*Ulex minor-Agrostis curtisii* heath	31.238 Anglo-Norman dwarf gorse heaths
H4-*Ulex gallii-Agrostis curtisii* heath	31.235 Anglo-Armorican western gorse heaths
M16-*Erica tetralix-Sphagnum compactum* wet heath	31.11 Northern wet heaths
M21-*Narthecium ossifragum-Sphagnum papillosum* valley mire	51.12 Bog hollows

2. THE 1996 DORSET HEATH STUDY

2.1 Desk Study

One of the main objectives of this report was to gain an up-to-date picture of the distribution of *Erica ciliaris* in Cornwall. The first stage of this study was therefore a desk exercise, to draw together all existing information on the species and compile a list of locations where it had been recorded in the past. Information was gathered from a number of sources:

(i) Locations listed in the County Floras: Davey (1909), Thurston and Vigurs (1922), Margetts and David (1980) and Margetts and Spurgin (1991).
(ii) A list of all records held by the Cornish Biological Records Unit (now merged with the Cornwall Wildlife Trust, Jan. 1997).
(iii) A list of localities held in the Cornwall Wildlife Trust files.
(iv) Notes made by S. B. Chapman of Furzebrook, after site visits made in 1962.
(v) An English Nature list, detailing the known localities in Nov. 1991
(vi) Personal communication with county recorders: past - L. J. Margetts and present - R. J. Murphy and C. French.

Photocopies of the original lists of localities are given in Appendix 1.

From these lists, all locatable sites were extracted. Many of the records were rather vague and only located by verbal description, with no grid reference. Others were located by 1km or sometimes only by 10km square. In some cases grid references had recently been added to the old, verbal descriptions and may be incorrect, as they refer to the named place (usually a village or parish) rather than the actual plant locality. Many of the records listed were duplicated, being called by a different name and located by a slightly different grid reference.

Any background information or documentation from existing sources pertaining to these sites was also collected during the desk study phase and has been listed on the Site Summary Sheets, included in the Site Dossiers presented in Volume II of this report.

In addition, areas adjacent to each site that were highlighted by the recent English Nature Heathland Re-creation Study as possible areas where heathland could be re-created, were also examined.

After the survey was completed further information came to light in a report (Leslie and Bradshaw 1975) held by the former Cornwall Biological Records Unit and as a result of some follow up survey work. The sites involved have not been investigated in detail and have not been used in the calculations of area etc in this report. Reference to them is included for the sake of completeness and further details are provided in appendix 2.

2.2 Fieldwork

After rationalisation of the lists there followed a period of field work in which the locatable sites were visited. Every effort was made to pinpoint the less easily locatable sites by identifying suitable habitat within the area given, which was then visited. Ideally, if these methods still failed to find the site, a search would have been made of all roadsides, paths etc. within the given area. However, time was not available to pursue these records further. Time restraints also precluded searching in large areas of unlikely habitat e.g. an old, vague record for Carclew Woods.

Each of the sites where *Erica ciliaris* was refound was mapped in the field, to record its location, and the extent of *Erica ciliaris*. The abundance of *Erica ciliaris* was assessed and recorded using a system whereby the Dorset Heath was assigned to one of three categories: sparse, where *Erica ciliaris* is only rarely-occasionally present, occurring as isolated individual plants within the vegetation; scattered, where *Erica ciliaris* is frequently found scattered throughout the vegetation; and dense where *Erica ciliaris* dominates the vegetation, sometimes forming almost pure stands. The total extent of the area of habitat containing *Erica ciliaris* was then measured from the maps using a Romer grid.

In addition, areas adjacent to the site, highlighted by the recent Heathland Re-creation study as possible areas where heathland could be re-created, were also examined and their state and suitability assessed on the ground.

Data provided by fieldwork and liaison with landowners, is recorded in the form of a summary sheet and maps for each site, accompanied by more detailed habitat descriptions. These are contained in the Site Dossiers in Volume II of the original report. Volume II is held at the offices of English Nature in Cornwall and the Cornwall Wildlife Trust.

2.3 Results

Erica ciliaris/ Dorset Heath was refound in 22 sites. These are listed in Table 2 and their locations shown on Maps 1 and 2.

A total of 19 records could not be located or refound and these are, for the sake of completeness, listed in Table 3. Most of these are old localities where *Erica ciliaris* has not been seen for a number of years and the exact locations of which are unknown. Five are more recent, but although exact locations were known in these cases, *Erica ciliaris* was not refound. It is thought possible that *Erica ciliaris* is present in two of these sites: Chyenhal Moor (lost in dense scrub and was subsequently refound- see appendix 2) and Goss Moor (unconfirmed record) but the third record, on Caradon Hill, is not thought to exist and the fourth and fifth, on disused railway lines at Mithian and north of Trewartha Farm, are believed lost.

2.3.1 Current Status of *Erica ciliaris* / Dorset Heath in Cornwall

Erica ciliaris/ Dorset Heath is known to be extant in 22 localities in Cornwall. These 22 sites are concentrated in the "Carrick heaths" zone, with just two outside this core area, both on the Lizard Peninsula, which are believed to have been planted.

There is currently a total of 106.5 ha of Dorset Heath in the county. Four of the sites are on roadside Cornish hedges/banks and these and the single bush on Goonhilly Downs take up a negligible area. When these are discounted, it can be seen that the total area of Dorset Heath is spread between 17 sites. The spread of area between sites is uneven. Most sites are small, with only five containing an area of 3 ha or more. These are listed in Table 4, in descending order of size.

TABLE 2: DORSET HEATH STUDY - SITES IN CORNWALL SUPPORTING DORSET HEATH

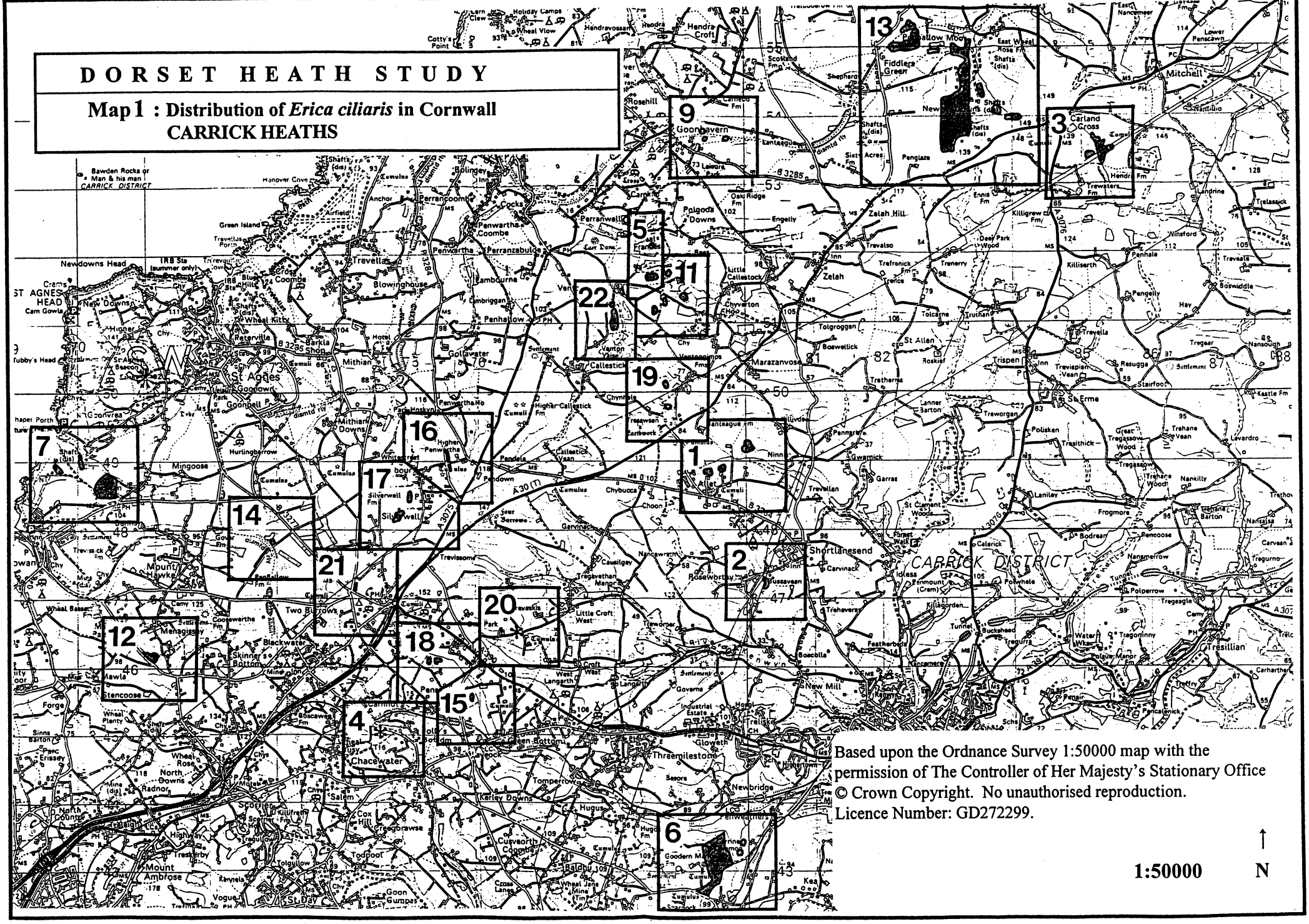
Map no.	Name	Other Names	Grid Ref.	Area of dry Dorset heath	Area of wet Dorset heath	Conservation Status	Re-creation Areas Adjacent	Summary Description
1.	Allet Common	Allet Bog	SW 795488	-	2.25 ha	SSSI/ CNC (CK17)	high, medium and low potential	Three discrete areas of wet Dorset heath amongst willow dominated woodland
2.	Bussavean Meadows		SW 803475	-	0.2 ha	SSSI/CNC (CK24)	medium and low potential	Now just remnants of once more extensive area of wet Dorset heath, destroyed by building of SWEB sub-station. Threatened by scrub invasion.
3.	Carland Moor	Trewaters Valley Heath	SW 852535	1.75 ha	5 ha	SSSI/CNC (CK21)	medium and low potential	Two areas of wet Dorset heath surrounded by wet willow woodland in a valley bottom with an area of dry heath with some *Erica ciliaris* on the eastern valley slope.
4.	Carnhot	Near /north of Chacewater	SW 746451	one plant	-	-	-	A single plant on a steeply sloping roadside bank
5.	Carnkief Moors	Carnkief Pond	SW 785521	-	1.2 ha	cSAC/SSSI/ CNC (CK41)	high, medium and low potential	Two discrete areas. One area of wet Dorset heath, south of the pond, was not surveyed. The other, east of the pond and also wet, has been overtaken by birch dominated woodland and has virtually disappeared.
6.	Carrine Common	Between Truro & Sparnick Tunnel	SW 796433	16 ha	1 ha	SSSI/ CNC (CK20)	medium (but not adjacent to the heath)	The common comprises dry heath, the majority of which (16 ha) contains some *Erica ciliaris*. This heather becomes dominant in some areas and is in fair quantity in approx. 6 ha. Two of the small enclosures in the stream valley to the east of the common contain wet Dorset heath.
7.	Chapel Porth Valley (including Towan Cross)		SW 703490	11 ha	-	SSSI/ CNC (CK2.1)	-	Dry Dorset heath covers much of the SE end of the National Trust property and occurs further west along the valley as a series of smaller patches within dry western heath. Some *Erica ciliaris* is found in 11 ha of the site, and is present in fair quantity in 5.5 ha of this
8.	Erisey	Grade Ruan	SW 717185	-	0.02 ha	SSSI/NNR CNC (K33/I36)	medium potential	Believed to have derived from a bush planted by P G Williams, the *Erica ciliaris* has spread into a small area of the surrounding heath.
9.	Goonhavern Moors	Carn Moor	SW 795537	1 bush	0.01 ha	CNC (CK19/ part is CWT Sanctuary	medium potential	Occurs in two main areas of wet heath. In addition, outside of these, is a location with a single plant of *Erica ciliaris* and three further locations with individual plants of the hybrid.
10.	Goonhilly Downs		SW 725210	1 bush	-	SSSI/NNR/ CNC (K33/I42)	medium potential (high close by)	A single bush within an area of fairly dry heath.
11.	Lelight and Brickmoor Plantations	Wentworth Mines Carnkief Chyverton	SW 788517 SW 787513 SW 791514	0.4 ha	0.96 ha	SSSI/CNC (CK4.2)	medium and low potential	Three discrete areas: open area of dry heath around Wentworth Consols Mine and beneath adjacent area of plantation; a fragment beneath plantation beside track to Cotton Springs Farm (recently damaged by SWW Spine Main); a larger area of wet Dorset heath surrounded by plantation.

TABLE 2: DORSET HEATH STUDY - SITES IN CORNWALL SUPPORTING DORSET HEATH (continued)

Map no.	Name	Other Names	Grid Ref.	Area of dry Dorset heath	Area of wet Dorset heath	Conservation Status	Re-creation Areas Adjacent	Summary Description
12.	Menagissey	Porthtowan, S. of Mount Hawke, nr. Manor Parsley	SW 711462	0.56 ha	-	SSSI/CNC (CK10)	low potential	Comprises an extensive area of dry Dorset heath, with abundant *Erica ciliaris*, on a hillside, with occasional bushes in the wet heath of the adjacent valley.
13.	Newlyn Downs		SW 835545	39 ha	19 ha	cSAC/SSSI/ CNC (CK6)	high, medium and low potential	Some *Erica ciliaris* is present in approx. 58 ha (2/3) of the Downs, and is found in fair quantity in approx. 33 ha of this (1/3 of the site). Main areas are the dry north and east facing hill slopes in the south and at the northern end of the Downs and in the wet heaths of Penhallow Moor.
14.	Penhallow Farm	Railway near Gover Farm	SW 729478	0.43 ha	-	SSSI	low potential area close by but not adjoining	Moderately wet fragment of Dorset heath beside disused railway, surrounded by broad-leaved woodland. South-eastern edge recently damaged by SWW Spine Main. Additional strip by track to SW.
15.	Penstraze Moor		SW 759455	-	approx. 1.5 ha	SSSI/CNC (CK49)	medium and high potential	Permission to survey the site was refused. *Erica ciliaris* was present in an area of *Molinia* and gorse and evidence from aerial photographs suggests that recent drainage/scrub clearance has taken place in this area. It is assumed that *Erica ciliaris* is still present but the last confirmed record is November 1987.
16.	Penwartha	Penwartha House, S. of P H, nr. P H	SW 755490 SW 756495 SW 754497	a few plants	-	-	-	Occasional plants found on roadside Cornish hedges in three main areas of the lanes south of Penwartha House and west of Higher Penwartha.
17.	Silverwell Moor		SW 748483	-	1.95 ha	SSSI/ CNC (CK8.2)	high, medium and low potential	Two main areas of Dorset heath, one wet with areas of boggy mire, the other dry. Dorset heath is being lost in the wetter areas and on the path to the east, due to scrub invasion.
18.	Three Burrows		SW 752463	-	0.67 ha	SSSI	-	Two adjoining areas of wet Dorset heath. The western area is a 0.22 ha remnant in a wet field bottom and is currently being infilled. The eastern area is in a small enclosure and being invaded by scrub.
19.	Tresawsen	Kenwyn	SW 788498 SW 788501	-	0.2 ha	SSSI/CNC (CK 54)	low potential	Two areas of wet Dorset heath beneath woodland and scrub. The *Erica ciliaris* is still clinging on but will soon be completely shaded out.
20.	Trevaskis		SW 765465	a few plants	-	-	-	Three patches of *Erica ciliaris* on north and west-facing roadside Cornish hedges. Becoming lost beneath scrub.
21.	Tywarnhale		SW 741472	scattered plants	-	-	-	A 100m stretch of west-facing roadside Cornish hedge supporting frequent patches of *Erica ciliaris*.
22.	Ventongimps Moor		SW 781512	1.2 ha	2.2 ha	SSSI/ CNC (CK1) CWT Reserve	medium and high potential	A large area of both wet and dry Dorset heath types, forming part of a heathland, willow woodland, scrub and mire mosaic. The *Erica ciliaris* is most abundant in the drier areas. The reserve is managed to maintain and enhance the *Erica ciliaris*.

DORSET HEATH STUDY

Map 1 : Distribution of *Erica ciliaris* in Cornwall
CARRICK HEATHS



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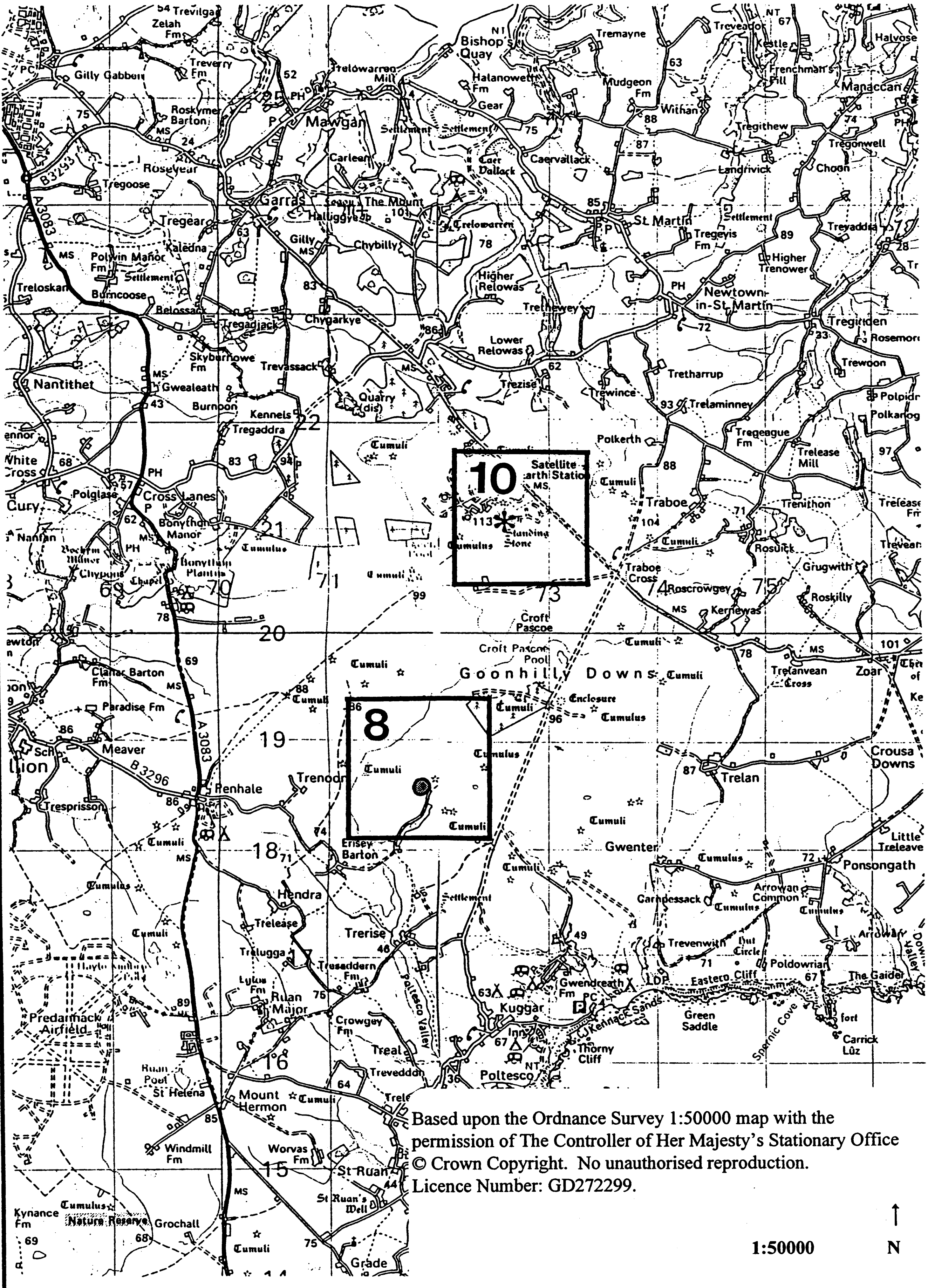
Map 2 : Distribution of *Erica ciliaris* in Cornwall
THE LIZARD



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DORSET HEATH STUDY

Map 3 : Location of *Erica ciliaris* at Chyenhal Moor

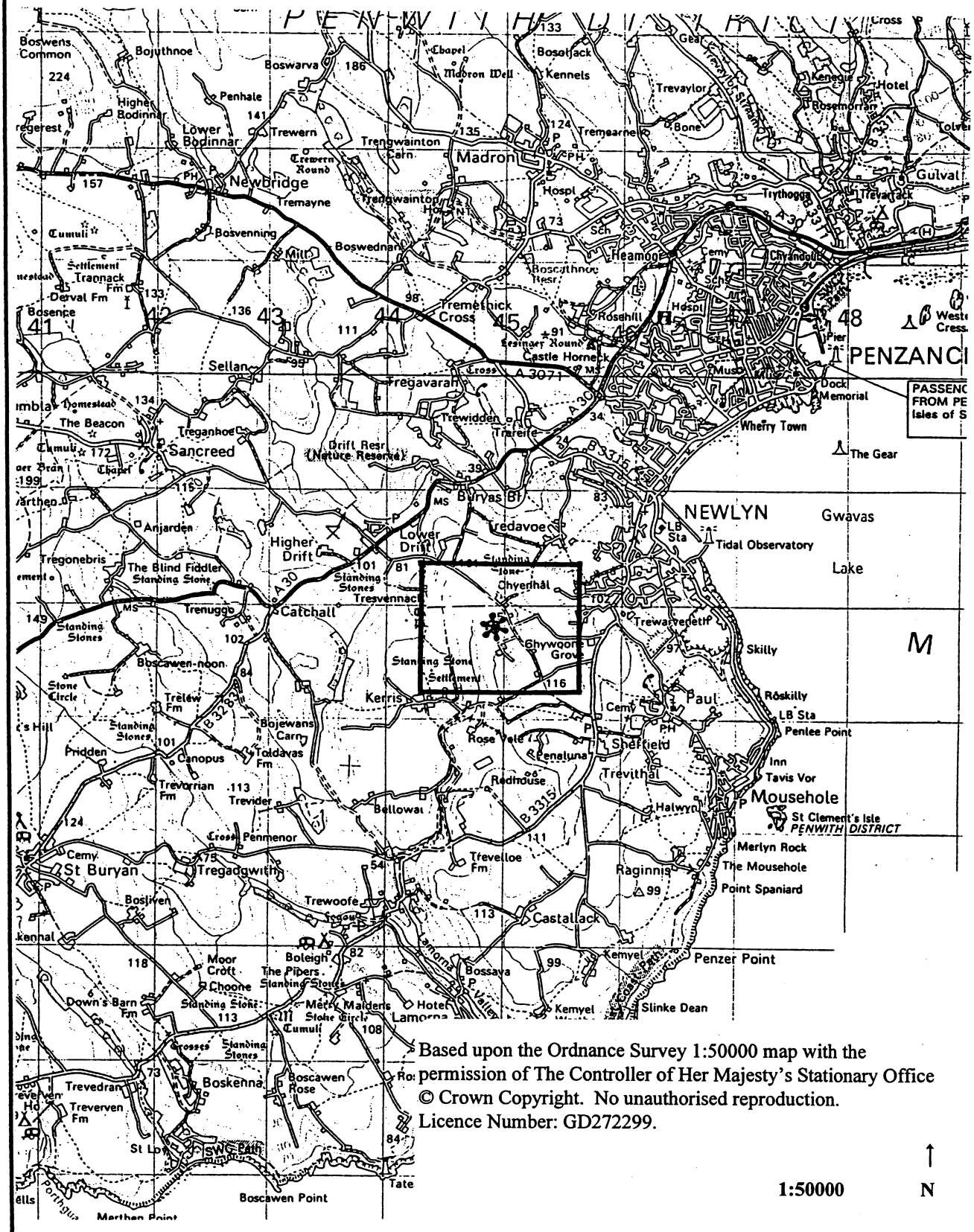

Table 3: Dorset Heath Sites Not Relocated

Site name	Grid Ref.	General Information	Reason Not Relocated/Refound
Gweek/East of Gweek	SW 728209	Recorded by Mrs R. Henning (who lived in Gweek) on the BSBI mapping scheme.1960.	Not found at these grid refs. Exact location unknown.
Marazion Marsh	SW 5031	Planted by E. A. Rees in 1934, not reported since.	Exact location unknown.
Carclew Woods		First recorded in 1838 by G Davies, still there in 1934 (- Thurston 1935). Carclew used to contain areas of heath at this time (nightjars nested in areas of felled trees in the 1940s).	Exact location unknown.
Near Truro		R.S Tozer 1828	Exact location unknown.
Chacewater		Recorded by F. H. Davey 1909, still there in 1927 (Thurston & Vigurs 1927) and in 1960 J. H. A. Stuart.	Exact location unknown.
Moorland NE of Bugle		Recorded by Mrs J Paton in 1966.	Exact location unknown.
Mount Hawke	SW 729471	Recorded by Dr A C Leslie 1975.	Lost due to railway cutting being infilled 15-20 years ago.
North of Pendown, Perranzabuloe		Martineau 1909.	Exact location unknown.
Perranporth		F. H. Davey 1909. Grid ref. Refers to part of the town and an area of coastal dunes.	Exact location unknown.
Crofts btwn Sparnick Tunnel & Bissoe		Recorded by Ralfs in 1879 and Davey in 1909.	Exact location unknown.
Bissoe		Mr J. Ralfs 1879	Exact location unknown.
St Agnes		F. H. Davey 1909. Grid ref. refers to St Agnes Head and the adjacent coast.	Exact Location unknown.
Crofts near Ding Dong Mine		Dymes 1889. Only one or two small plants.	Exact location unknown.
Saveock Moor		Recorded by Mr W Curnow in 1874.	Exact location unknown.
Mithian Halt	SW 748504	F H Davey 1909, L J Margetts 1965, A C Leslie 1975. On west face of railway cutting just NW of old platform.	Believed to have been shaded out by growth of trees and scrub.
North of Trewartha Farm	SW 729471	A. C. Leslie 1975. On disused railway line.	Believed lost when section of railway infilled 15-20 yrs ago.
Caradon Hill	SX 268712	In a very restricted area just above the old railway, on the north side of the hill, in unimproved grassland. Not refound during current 1996 survey.	The area described was searched but no sign of *Erica ciliaris* found.
Chyenhal Moor	SW 446279	Planted by E. A. Rees in 1934, still there post 1950 and still there in 1984. The site now is overgrown by dense scrub and may survive beneath this but was not refound in 1996. Re-found 1998- see appendix 2.	Site very overgrown with dense scrub, could not get in e area where *Erica ciliaris* last seen.
Goss Moor	SW 959600 SW 966600	Unconfirmed reports of two small patches of *Erica ciliaris* within wet heath. Not seen during the course of this survey.	Site not located on the ground

Table 4: The Five Largest Dorset Heath Sites.

Site	Area of Dorset Heath
Newlyn Downs (& Penhallow Moor)	58 ha
Carrine Common	17 ha
Chapel Porth Valley	11 ha
Carland Moor	6.75 ha
Ventongimps Moor	3.4 ha

The total area of Dorset Heath can be further split into wet and dry heath. It should be noted that some sites contain both wet and dry components. 70 ha of the total county area is dry Dorset Heath, contained within 8 sites. 36 ha is wet Dorset Heath, contained within 14 sites. In general the dry sites are larger than the wet, the latter usually being remaining fragments of wet valley systems.

The most significant cluster of sites is in the area of Ventongimps Moor. Here 4 sites (Ventongimps Moor, Lelight & Brickmoor Plantations, Tresawsen and Carnkief) are within a 1.5 km radius of each other and the potential exists for heathland re-creation to link these together. (See section 5. of this report).

2.3.2 Habitat Preferences

Erica ciliaris in Cornwall occurs in a range of habitat types, including both wet and dry heaths and mires. It is often stated that in general the Cornish sites are drier than those in Dorset (e.g. Rose, Bannister and Chapman 1996). In some of the Cornish sites the plants even survive on the well-drained, earth-filled and turf-faced stone banks known as Cornish hedges. However, it should be considered that these relict sites may not necessarily be representative of the habitat preference of the original population.

Soil analysis has shown that the Cornish sites are slightly more alkaline than those in Dorset. They also contain less organic matter and tend to be silty whereas the Dorset soils are sandy (Rose, Bannister and Chapman 1996).

The greatest altitude of the Cornish sites is 130m above sea level and there seems to be a preference for north-facing slopes. *Erica ciliaris* is considered to be intolerant of salt spray (Underhill 1990) and observations of Cornish populations seem to support this as, when found near the coast, the plant is generally leeward of higher ground.

2.3.3 Communities

Detailed NVC analysis of the vegetation types encountered was not feasible in the time available, however some general observations on the Cornish communities can be made.

H3-*Ulex minor-Agrostis curtisii* heath does not occur in Cornwall, as *U. minor* is not present in the county. The very similar dry heath community H4, in which the *U. minor* is replaced by *Ulex gallii* is the dry heath community found here. Rose et al (1996) reported that stands of H4 in both Cornwall and Dorset tend to correlate with the *Erica tetralix* sub-community H4c. Observations made during the course of this project tend to support this view.

The *Erica tetralix-Sphagnum compactum* wet heaths of M16 are the most common vegetation type containing *Erica ciliaris* in Dorset, and in Cornwall too this seems to be the case. Rose et al (1996) observed that in Dorset, wetter communities with more sphagnum relate closely to M16c, the *Rhyncospora alba-Drosera intermedia* subcommunity, whereas those containing species indicative of drier conditions, such as *Calluna vulgaris* tend to relate more closely with the typical M16a sub-community. Once again observations of Cornish sites tend to support this.

However, although the Cornish communities generally fit well into the M16 community type there is an anomaly in the presence of *Schoenus nigricans.* Many of the Cornish wet heaths with *Erica ciliaris* also contain varying amounts of *Schoenus* which can be locally frequent, sometimes co-dominant with the *Molinia.* It is possible that these communities could be trending towards the *Schoenus nigricans-Narthecium ossifragum* Mire, M14, which occurs in Cornwall where flushing provides local amelioration of prevailingly acidic soil conditions, as occurs on the metamorphosed killas shales. *Schoenus* can also be a locally prominent feature in the *Molinia caerulea-Potentilla erecta* Mire community, M25.

A further observation is that the typical Cornish wet heath community containing *Erica ciliaris* contains much *Myrica gale.* This is associated with an abundance of *Molinia caerulea* and the vegetation can often take on the appearance of a *Molinia/Myrica* mire, which could also be attributable to the M25 community type.

The wettest habitat recorded containing *Erica ciliaris* in Dorset is the *Narthecium ossifragum-Sphagnum pappilosum* Valley Mire, M21 and this may be present in the wetter parts of some of the Cornish sites such as Silverwell Moor, Allet Common and Goonhavern Moors.

The widely stated view that Cornish Dorset Heath sites are drier than those in Dorset merits some investigation. It is often quoted that *Erica ciliaris* grows on Cornish hedges and this perhaps creates the general impression that in Cornwall *Erica ciliaris* grows in very dry conditions. Close examination of the 22 Cornish sites reveals that in fact only 3 are on Cornish hedges (and one more is on a dry roadside bank). These relict Cornish hedge sites are thought to be left from a time when *Erica ciliaris* covered a much more extensive area and are not necessarily representative of the habitat preferences of the original population, which has since disappeared.

Analysis reveals that when these roadside sites are discounted, just 8 sites contain Dorset Heath of the dry heath (H4) community type, however, this represents 66% of the total area of Dorset Heath in Cornwall. In fact 14 sites contain Dorset Heath falling broadly within the wet heath community types(M16/M21), but this represents just 34% of the total area of Dorset Heath in Cornwall (NB. 5 of the sites contain both wet and dry communities).

Although no detailed NVC analysis was carried out, it is likely that of these wet heath sites more are at the dry (M16a) subcommunity end of the range whereas perhaps those in Dorset are at the wetter (M16c/M21) subcommunity end of the spectrum. This may indicate slightly drier conditions in Cornwall but the often quoted, greater dryness of Cornish Dorset Heaths is considered to be on a sub-community rather than a community level or possibly due to the greater area covered by the dry heath communities.

3. CURRENT FACTORS AFFECTING *ERICA CILIARIS* / DORSET HEATH IN CORNWALL

3.1 Legal Status

Erica ciliaris receives protection only through the habitats in which it occurs. It is classed as a Nationally Rare, Red Data Book plant species but is not one of the Specially Protected Species listed on Schedule 8 of the Wildlife and Countryside Act and therefore has no special protection in its own right.

3.1.1 Overview

There are currently a multitude of different environmental laws, site designations and policies that can be used to protect habitats.

• **International** protection is provided by the **Council Directive 92/43/EEC (1992) on the Conservation of Natural Habitats and of Wild Fauna and Flora**, commonly called the **EC Habitats and Species Directive**. The UK Government implemented the Directive through **The Conservation (Natural Habitats, &c.) Regulations, Wildlife Countryside No. 2716** (1994). One of the provisions of this was to promote the conservation of biodiversity through the formation of an European-wide network of sites for the conservation of habitats, wild animals and plants, which form part of **Natura 2000**. The individual sites are known as **Special Areas of Conservation** (SACs). Before formal designation as SACs sites must go through a ratification process whereby first they are recommended to the EC by Member States at which stage they are called **candidate SACs**. Once they have been agreed by the EC and the Member State they become **Sites of Community Importance (SCI)** until they are designated as SACs. Currently there are only candidate SACs but it is Government policy that these should be treated as though they were already designated SAC. This is about top change as the Government is proposing an amendment to the Habitats Regulations which will enshrine this approach in law ie. candidate SACs will have the same legal status as SACs.

Natural habitat types of community interest whose conservation requires the designation of Special Areas of Conservation (SACs) are listed on **Annex 1** of the Directive. These are included because :

(i) they are in danger of disappearance in their natural range; or

(ii) they have a small natural range following their regression or by reason of their intrinsically restricted area; or

(iii) they present outstanding examples of typical characteristics of one or more of the five following biogeographical regions: Alpine, Atlantic, Continental, Macaronesian and Mediterranean.

In Britain, through the Habitats Regulations 1994, the UK Government has decided that in the terrestrial environment all SACs must first be SSSI.

Some of the habitats listed may be **priority habitats**. These are natural habitat types in danger of disappearance, the conservation of which the Community has particular responsibility for in view of the proportion of their natural range which falls within Europe. Habitats containing *Erica ciliaris* in Cornwall are included. They fall within the Southern Atlantic Wet heaths with *Erica ciliaris* and *Erica tetralix.* These belong to the Atlantic heathlands category which is limited to the European Western Coastal regions with a mild humid climate. This is an internationally very restricted class of vegetation with little or no floristic affinity with heathlands in other continents. The sites are therefore of considerable European importance and are among the scarcest and most threatened habitats in Europe.

Article 2 of the Directive states that measures should be taken to maintain or restore the favourable conservation status of the natural habitats and species of Community interest. Favourable conservation status is defined as when the sum of influences acting on a natural habitat and its typical species, that may affect its long-term natural distribution, structure and functions, as well as the long-term survival of its typical species within Europe, mean that:

(i) its natural range and areas it covers within that range are stable or increasing; and

(ii) the specific structure and functions which are necessary for its long-term maintenance exist and are likely to exist for the foreseeable future; and

(iii) the conservation status of its typical species is favourable.

• **National** protection comes through the **Wildlife and Countryside Act** (WCA 1981). This requires English Nature to notify and protect **Sites of Special Scientific Interest** (SSSIs). These sites then receive protection in various ways: they gain some level of protection through the planning system; regulators and statutory undertakers such as the Environment Agency, need to take account of them and it is a requirement for owner/occupiers to consult English Nature over certain listed operations that are likely to damage the special interest. The Wildlife & Countryside Act also provides protection from uprooting for *Erica ciliaris* as it is illegal to uproot any wild plant without permission from the landowner/occupier.

The Department of the Environment issues **Planning Policy Guidance Notes** which set out the government policies on different aspects of planning. Local planning authorities must take their contents into account on preparing their development plans. PPG 9 deals with nature conservation issues including SACs and the development planning system in detail.

• **Local** protection relies upon the planning system. **The Cornwall Structure Plan** (Deposit Draft) comprises a written statement of policies and proposals, setting out Cornwall County Council's Strategic planning framework for land use and development for the period up to 2011. Areas of local wildlife value are covered by policies relating to non-statutory sites called **Cornwall Nature Conservation Sites** (CNCs). These are identified by the Cornwall Wildlife Trust as being of at least county importance for nature conservation.

District Wide Local Plans developed by District Councils, develop the policies and general proposals of the County Structure Plan, provide a detailed basis for development control and bring local planning issues before the public.

Areas of local wildlife value are included within these plans in the form of policies relating to CNC sites. These sites are also identified on proposals maps within the plans.

The habitats in which *Erica ciliaris* occurs are protected through the mechanisms outlined above. These are put into a more local context and their relevance to *Erica ciliaris* outlined in the following sections.

3.1.2 Special Areas of Conservation (SACs)

To date there are 11 candidate SACs in Cornwall which have been put forward to the European Community (All terrestrial SACs are also SSSIs). Five of the Dorset Heath sites listed in this study are within candidate SACs but only two of those have been put forward for the Dorset Heath (or "Southern Atlantic wet heaths..."etc) Priority Natural Habitat Type. These are Carrine Common candidate SAC and Newlyn Downs candidate SAC.

Of the others Erisey and Goonhilly Downs are within The Lizard candidate SAC and Chapel Porth Valley is within the Godrevy Head to St Agnes candidate SAC. The presence of Dorset Heath in these sites is coincidental and is not currently part of the candidate SAC interest. However, currently the UK is revising its list of candidate SACs in light of an EC view that it is inadequate. Consequently new sites may be identified and new interest features may be added to existing candidate SACs.

Of the Dorset Heath sites in Cornwall the Chapel Porth Valley would appear to be the strongest contender for adding to the series if any sites are needed for this Annex 1 Habitat Type.

Table 5: Area of Dorset Heath Within Candidate SACs in Cornwall

Site	Area of Dorset Heath in candidate SAC
Newlyn Downs	58 ha
Carrine Common	17 ha
Erisey	0.02 ha
Godrevy Head - St Agnes	11 ha
Goonhilly Downs	1 bush
Total	**86.02 ha**

Altogether 86.02 ha of Dorset Heath is within candidate SACs. As the Carrine Common and Newlyn Downs sites were the ones selected for Dorset Heath 70% of the total area of Dorset heath in Cornwall is designated as candidate SAC for that interest.

It should be noted that when the survey was completed only 28.02 ha of Dorset Heath was within a candidate SAC but of this only 17 ha, around 16% of the resource, was within a candidate SAC identified because of its Dorset Heath habitat ie. Carrine Common. Immediately after the survey results became known the Newlyn Downs site, with by far the largest area of Dorset Heath, was notified as an SSSI in 1997 and then became a candidate SAC in 1998.

3.1.3 Sites of Special Scientific Interest (SSSIs)

Seventeen of the 22 sites have been notified Under the Wildlife and Countryside Act (1981) as Sites of Special Scientific Interest (SSSI) and are covered by the protection and management agreements this entails.

These sites, and the area of Dorset heath covered by the SSSI designation in each, are shown in the table below:

Table 6: Area of Dorset Heath Within SSSIs in Cornwall

Site	SSSI Name	Area of Dorset heath in SSSI
Allet Common	Carrick Heaths	2.25 ha
Bussavean Meadows	Carrick Heaths	0.2 ha
Carland Moor	Carrick Heaths	6.75 ha
Carnkief Moors	Carnkief Pond	1.2 ha
Carrine Common	Carrine Common & Penwethers	17 ha
Chapel Porth Valley	Godrevy Head - St Agnes	11 ha
Erisey	Goonhilly Downs	0.02 ha
Goonhilly Downs	Goonhilly Downs	1 bush
Lelight and Brickmoor Plantations	Carrick Heaths	1.36 ha
Menagissey	Carrick Heaths	0.56 ha
Newlyn Downs	Newlyn Downs	58 ha
Penhallow Farm	Carrick Heaths	0.43 ha
Penstraze Moor	Carrick Heaths	c.1.5 ha
Silverwell Moor	Silverwell Moor	1.95 ha
Three Burrows	Carrick Heaths	0.67 ha
Tresawsen	Carrick Heaths	0.2 ha
Ventongimps Moor	Ventongimps Moor	3.4 ha
	Total	**106.49 ha**

Altogether 106.49 ha of Dorset Heath are designated as SSSI, that represents over 99.9% of the total area of Dorset heath in Cornwall.

It should be noted that when the survey was completed only 34.57 ha around 33% of the resource was within SSSIs. Immediately after the survey results became known the Newlyn Downs site was notified as an SSSI in 1997. At the time it was subject to a development proposal threat. In 1999 most of the remaining sites were "wrapped up" in a composite SSSI called Carrick Heaths.

3.1.4 Structure Plan

The Cornwall County Council Structure Plan (which is currently on Deposit and will probably be adopted in late 1997) states in Policy ENV 5 (in line with government advice contained in Planning Policy Guidelines, [PPG9, 1994]) that natural and semi-natural habitats or associated wildlife should not be disturbed or damaged by development. In particular development should not have an adverse impact on the substantive value of:

- any site of European importance (either Special Protection Area (SPA) or Special Area of Conservation (SAC), including proposed sites
- Sites of Special Scientific Interest or National Nature reserves
- sites shown to be of at least county importance for wildlife

The plan states that in considering development proposals account should be taken of the European, national or local importance of the interests to be protected and that development having either direct or indirect impact on such sites will be unacceptable unless no alternative site is available and there is no overriding public need. It says that the appropriate agency should be consulted over any development affecting designated areas.

To take account of PPG9 guidance on policy considerations for Priority Habitats, the independent panel which conducted public examination of the Plan has recommended, as one of the proposed modifications to the Deposit Draft, to make an addition to the end of the policy, as follows: "Where the site concerned hosts a priority natural habitat or species, development will not be permitted unless it is necessary for reasons of human health or public safety or for beneficial consequences of primary importance for nature conservation". The County Council has accepted this and proposes to make the modification.

3.1.5 Local Plans

The District Local Plans all contain similar policies protecting areas of conservation value. Most of the Dorset heath sites are in Carrick District and these are covered by the "Carrick District Wide Local Plan" which is at the Deposit Stage. The relevant policies here are Policy 3G which refers to SSSIs, Policy 3H which concerns CNC Sites and Policy 3J which seeks to protect habitats which do not fall within designated areas.

The Lizard sites are in Kerrier District and these are covered by "The Kerrier District Wide Local Plan" the Consultation Draft of which is due in May 1997.

Both statutory and non-statutory designated sites receive varying degrees of protection in this way.

The Minerals Local Plan and the Cornwall Waste Local Plan provide the policy context against which mineral and non-mineral related waste disposal development applications respectively, can be assessed. The principles underlying these plans also take account of areas of Wildlife interest.

3.1.6 Cornwall Nature Conservation (CNC) Sites

16 of the 22 sites (4 of the exceptions being roadside sites) are covered by the Cornwall Nature Conservation (CNC) Site designation. The Dorset heath sites covered by CNC site status are listed in the table below and the area of Dorset heath covered by the designation in each site is also shown.

Table 7: Area of Dorset Heath Within CNC Sites in Cornwall.

Site	Area of Dorset heath in CNC
Allet Common	2.25 ha
Bussavean Meadows	0.2 ha
Carland Moor	6.75 ha
Carnkief Moors	1.2 ha
Carrine Common	17 ha
Chapel Porth Valley	11 ha
Erisey	0.02 ha
Goonhavern Moors	0.01 ha
Goonhilly Downs	1 bush
Lelight & Brickmoor Plantations	1.36 ha
Menagissey	0.56 ha
Newlyn Downs	58 ha
Penstraze	1.5 ha
Silverwell Moor	1.95 ha
Tresawsen	0.2 ha
Ventongimps Moor	3.4 ha
Total	**105.4 ha**

Altogether 105.4 ha of Dorset heath are designated as CNC site, that is 99% of the total area of Dorset heath in Cornwall.

Just 2 Cornish sites (representing 14% of the total area of Dorset Heath in Cornwall) are in conservation ownership and are thus protected outright from direct damage. These are Ventongimps Moor, owned by The Cornwall Wildlife Trust and Chapel Porth Valley, owned by The National Trust. However, this does not necessarily protect them from external influences such as eutrophication or acidification of water or soil.

In addition the Goonhilly Downs bush is within the Lizard National Nature Reserve (NNR) and as such is leased and managed by English Nature. English Nature are also in the process of negotiating a lease on Carrine Common, which will then also be managed as NNR.

3.2 Threats

Analysis of the Cornish sites reveals that currently the most immediate and widespread threat to their survival is neglect. Agricultural reclamation has been a major cause of loss in the past and is ongoing across Cornwall but only a small number of Dorset Heath sites are currently threatened in this way. Smaller areas have been lost to development and afforestation.

3.2.1 Neglect

Heath is a sub-climax community produced by woodland clearance and maintained by grazing, burning, exposure etc. It will therefore always proceed to climax woodland. If left unmanaged this progression to woodland begins with the encroachment of scrub and trees until eventually the heathland is lost. The present study reveals that all or part of half of Cornish Dorset Heath sites are threatened in this way. This is estimated to affect approximately 13.28 ha of Dorset Heath, that is some 12% of the total county resource. The other half of sites, representing approximately 90 ha, i.e. 87% of the County total area of Dorset Heath, are being managed to some degree or are being maintained naturally by biological factors such as exposure, and whilst this management is not necessarily ideal, it is sufficient to prevent total loss of the site by succession.

3.2.2 Development

Three Cornish sites have been damaged by development, with a further site currently threatened. These developments include the laying of a SWW spine main (Penhallow Farm and Lelight & Brickmoor Plantation), building of an electricity sub-station (Bussavean Meadows) and industrial development (Newlyn Downs). It is difficult to estimate the area of Dorset heath lost in these cases. The areas lost to the pipeline are relatively small but the sub-station virtually destroyed a whole site, obliterating approximately 1ha. The area of Dorset Heath currently under threat of industrial development is approximately 2 ha. Immediately prior to and after the notification of the Carrick Heaths SSSI the Bussavean Meadows part of this composite SSSI was again damaged by its owners. The site is now due to become a nature reserve and an attempt will be made to restore the area of Dorset Heath damaged.

3.2.3 Afforestation

One of the Cornish sites has been subject to afforestation. Much of the Dorset heath at Lelight & Brickmoor Plantations (some 1.36 ha) has been over-planted with trees. Plants can survive for 15 - 20 years after planting under productive forest but persist only in the wider rides and along tracks as the plantation matures. *Erica ciliaris* persists at Lelight & Brickmoor in clearings and beneath more open areas of the canopy, although usually etiolated and not flowering. In areas of deeper shade it is being replaced by Irish ivy *Hedera hibernica.* It is believed that some areas of Dorset Heath may have been lost at this site due to the afforestation but the exact area of *Erica ciliaris* when the plant was first recorded here is unknown.

3.2.4 Agricultural Reclamation

Part of one Cornish site, Three Burrows, is currently being reclaimed for agriculture. The area affected is 0.22 ha, just 0.2% of the total area of Dorset Heath in Cornwall. A further two sites (Penstraze and part of Carnkief Moors) are thought to be under imminent threat of reclamation. The area threatened here is approximately 2.7 ha, nearly 2.5% of the total County resource.

Table 8: Threats to Sites Containing *Erica ciliaris* in Cornwall.

Threat	Site	Area of Site Affected
Neglect	Allet Common	2.25 ha
	Bussavean Meadows	0.2 ha
	Carland Moor	6.75 ha
	Carnkief Moors	0.075 ha
	Goonhavern Moors	0.01 ha
	Lelight & Brickmoor Plantations	1 ha
	Newlyn Downs (Penhallow Moor Section	1 ha
	Penhallow Farm	0.43 ha
	Silverwell Moor	0.7 ha
	Three Burrows	0.67 ha
	Tresawsen	0.2 ha
		Total = 13.28 ha

Table 8: Threats to Sites Containing *Erica ciliaris* in Cornwall. (continued)

Development	Penhallow Farm	approx. 400 sq.m
	Lelight & Brickmoor	approx. 400 sq m
	Bussavean Meadows	1 ha
	Newlyn Downs	2 ha
		Total = 3 ha
Forestry	Lelight & Brickmoor	1.36 ha
		Total = 1.36 ha
Agriculture	Three Burrows	0.2 ha
	Potentially Penstraze & Carnkief Moors	
		Total = 0.2 ha

4. MANAGEMENT OF EXISTING SITES

Analysis shows that neglect is the single biggest threat to Dorset heath sites in Cornwall. The lack of management is thought in part to be due to the small and fragmented nature of the sites but other factors then come into play such as lack of financial resources and incentives to manage such areas and lack of landowner education as to the value of sites.

4.1 Biological Factors Affecting Survival

It is essential to know certain factors of the biology of a plant when considering a strategy for its survival, as this will obviously affect management techniques, lengths of management rotations etc.

Erica ciliaris flowers and sets seed annually from its third season. Seasonal growth usually begins with extension of lateral shoots in April. Lateral buds may develop at the same time, but usually later in the season. Most English plants flower from early July to September but peak flowering is reached in August. The seed matures from the end of August until October and is usually shed by the end of November. Germination may take place immediately after the seed has been shed or if not, will not occur until early the following spring. Seed germination is unusual unless the ground has been disturbed by stock poaching or a fire. The dead inflorescences often remain on the plant throughout the winter and into the next growing season. In mature plants the usual method of propagation is by vegetative spread of prostrate stems which produce adventitious roots.

The average life span of the plants is not known but maximum stem ages derived from growth ring counts show ages of 15-20 years. Plants have been grown to 18 years without entering the senescent or degenerate phases exhibited by *Calluna vulgaris*. This is because new stems are produced continually. The vigorous regrowth from rootstock seen after burning and cutting suggests that the rootstock is very long-lived.

4.2 Grazing

Although half of sites are managed to some extent, or need little management due to biological factors, just four: Ventongimps Moor, Erisey, part of Goonhavern Moors and the Penhallow Moor section of Newlyn Downs, are grazed successfully. These areas account for approximately 22ha of Dorset Heath (approximately 22% of the total area of Dorset Heath in the county) and incidentally are all wet heath sites. It is generally a fact that few Dorset Heath sites nationally have been grazed in recent times. This is thought to be partly due to the fragmentation of sites meaning they are not suitable for grazing stock but also the reduction in the need for rough grazing as a result of agricultural intensification.

Grazing is one of the traditional methods of managing such heathlands. When such sites fall within pasture land they are often left open, so the cattle have the run of the heath and adjacent improved grasslands e.g. Penhallow Moor. Whilst this is not ideal, as the cattle tend to graze the improved land in preference to the poorer quality grazing, it can be of some benefit. However, some of the Cornish sites classed as neglected fall into this category and are not grazed long enough or at sufficient intensity e.g. Silverwell Moor. When such areas are within arable land they are totally neglected. Larger sites which form a viable grazing unit on their own would to some extent be exempt from this problem.

The level of grazing intensity is critical, too low and little effect is seen, too high and all sub-shrubs are eliminated altogether. However, grazing is effective in controlling *Molinia* and as many of the Cornish sites have a high proportion of this grass, grazing would be particularly suitable. Experience in the New Forest (Tubbs 1991) shows that summer grazing by cattle produces good results and is beneficial to heathers. Stocking levels of 1 cow/2.5 hectares, grazing for 2-4 months during the summer, gave the best results in the New Forest but densities can be adjusted to suit local conditions until the best results are achieved.

4.3 Burning

Regeneration from surviving rootstock after a fire is rapid. After a managed Spring burn, which legally must take place between 1st November and 31st March, and even after a more severe, accidental summer fire, some plants will flower the following summer. The burnt area is typically recolonised by grasses initially, with *E ciliaris,* possibly accompanied by *E. tetralix* dominating after 2-3 years. The slower-growing *Calluna* may become more prominent after 5 years. On open ground, seedling germination occurs readily but mortality is high in the early stages of establishment.

However, burning is damaging to invertebrates and encourages *Molinia caerulea* (Webb 1986). As *Molinia* forms a prominent part of the vegetation in the majority of the Dorset Heaths in Cornwall, burning is not generally considered a suitable management tool for many Cornish sites. However, if grazing is insufficient, rotational winter burning could be used in conjunction. Burning should be used with great caution, especially on wet sites and if it is to be used the effects should be monitored.

Part of the Newlyn Downs site in Cornwall had recently been the subject of a controlled burn at the time of survey and seedling and young plant re-establishment was indeed high, with rates of cover of over 25%.

4.4 Cutting

Cutting can be used to manage *Erica ciliaris* and the plant's response to this is much the same as for burning. The main drawbacks of this method are that cuttings have to be removed, as if left as a mulch they restrict regrowth. The topography, wetness and accessibility of most of these sites make mechanisation difficult. Regular mowing such as that occurring on roadside verges is thought to favour the more vigorous growth of hybrid plants.

4.5 Financial Incentives

The problem of lack of management is hard to tackle without financial incentives. If stock are to graze such poor quality land the right kind of stock must be used and appropriate animal husbandry techniques employed. If the heath is to be managed by cutting there is likely to be considerable time and effort involved as most sites are too rough, wet and inaccessible for the use of mechanised cutting equipment.

There are currently two suitable grant schemes at the moment, offering financial help for such work:

Countryside Stewardship offers payment to farmers and other land managers for conservation of the countryside. Countryside Stewardship agreements run for 10 years and can include a range of management items, each of which has its own payment. Countryside Stewardship schemes have been targeted at heathland sites and will remain so in the forthcoming year, but the take-up rate for such sites was disappointingly low in Cornwall last year. Countryside Stewardship is run from MAFF's nine Regional Service Centres. A team of ADAS Countryside Stewardship Project Officers provide technical and professional advice to applicants and agreement holders.

Cornwall Landscape Project Grants offer payment to farmers and land managers for the positive management of Cornwall's landscape and the creation of habitats, to underpin successful economic development and the maintenance of biodiversty. The project is a stimulus for action throughout Cornwall to improve the landscape, manage existing or create new habitats and restore historic features. The scheme is run by Cornwall County Council and administered by a Project Officer based in the Planning Department at County Hall.

Financial incentives also exist in the form of **SSSI management agreements** from English Nature. They include **Wildlife Enhancement Agreements**, operated on a similar basis to Countryside Stewardship (advice is available from the Local Team of English Nature) and the **Reserves Enhancement Scheme** (RES) for Wildlife Trust Sites if they are also SSSI.

4.6 Education

Education is a key element in safeguarding sites. Many of the farmers spoken to were unaware of the value of their area of Dorset heath. Of those who did know that it was special in some way, many did not realise it needed managing, or which factors would be damaging to it and an equal number simply didn't care. Exactly half of the landowners spoken to were aware of the value of the land and how to manage it to safeguard the *Erica ciliaris.* All of these were aware either because their land was covered by a SSSI management agreement, owned by a conservation body (Cornwall Wildlife Trust, National Trust) or covered by another conservation designation (Cornwall Nature Conservation Site, Cornwall Wildlife Trust Sanctuary) and their awareness resulted from contact with the protective body, or from visiting naturalists. However, a number of the unaware farmers had also had similar contact with conservation organisations but were not interested enough to retain the information.

5. RE-CREATION

The area of Dorset heath in Cornwall has declined to such a low level that it may not be sufficient simply to manage the sites that remain. The majority of them are small, making effective management difficult and the full range and diversity of the habitat may not be able to develop. Re-creation of Dorset heath to extend and link existing sites and create new sites is the next step in safeguarding *Erica ciliaris* in the future.

However, it should be borne in mind that re-creation is never a substitute for the "real thing" and should only be used to supplement the existing resource. Conservation of existing sites should always be the primary aim. There is a lack of knowledge on re-creation of Dorset heath and success is by no means guaranteed. Heathland re-creation in general is a relatively recent field of study and much experimental work needs to be done to develop techniques and to establish best practice.

5.1 Heathland Re-creation Plan

The National Lowland Heathland Programme was established by English Nature in 1993 to address the problem of rapidly declining heathland. The programme initially targeted the management of existing heaths and extending the area of open heathland by restoration. This is because such areas support the greatest diversity and abundance of heathland species so that management is cost effective and the outcome most predictable. However, because the losses of heathland have been so great and the effects in fragmenting the original large blocks of heathland into smaller units so serious, there is a need to re-create heathland. Attention was therefore turned to the potential of re-creating heathland on sites which once supported this important habitat type.

Most suitable are sites where re-creation will have a disproportionate effect, for example by joining or linking separate heathland fragments, re-creating a complete sequence of habitats from open water to mire, wet heathland and dry heathland, increasing the area of suitable habitat for rare heathland species or re-creating appropriate management units.

English Nature recently funded Heathland re-creation Plans in several key counties and a plan was completed for Cornwall in October 1994.

The main objective of the plan was to produce a series of maps for the county which show areas of land with the greatest potential for re-creation. In order to achieve this objective, a methodology was agreed with English Nature to:

- identify the key heathland zones in the county
- identify specific sites with heathland potential within the zones
- rank the re-creation potential of these sites by applying a set of criteria

The plan identified seven main heathland zones in Cornwall based on historical, physical and ecological data.

Aerial photographs taken in 1946 were used to identify sites with heathland re-creation potential within each of these zones. These sites are areas of land which once consisted of "rough ground" but now contain agriculturally improved grasslands, conifer plantations, china clay pits, roads, reservoirs or housing. Rough ground often comprised heathland but it may have contained unimproved grassland, wetland, bracken or scrub habitats.

Within each heathland zone, areas of rough ground lost since 1946 were classified into sites of high, medium and low heathland re-creation potential by applying a set of criteria and a ranking system. The six criteria used for the Cornwall Plan are based on those used by ITE (1994) and subsequently modified to take account of the available data sets in Cornwall. Sites are assessed according to:

- proximity to existing heathland
- size
- potential to link heathland sites
- current land-use
- potential to maintain or re-create hydrological units
- potential to enhance populations of key heathland species.

Points can be attached to the criteria according to their relative importance. The points system is weighted to favour criteria which are considered to be most important in assessing heathland re-creation potential. The points are then added together to give a score for each site with re-creation potential. The more potential a site has the higher its score. The possible range of scores is split into three categories- high, medium and low potential. These three categories of potential re-creatability are shown on 1:20 000 maps of the county to identify the areas.

The plan identified a total of 3,349 sites covering a total area of 13,904 hectares which had some potential for heathland re-creation. Of these sites, only 178 (5%) were identified as having a high heathland re-creation potential, covering 5052 hectares. The Carrick zone contains 156 sites with heathland re-creation potential, covering 328.96 ha. Of these sites only 11, covering 103.4 ha (31% of the total area of sites) were of high re-creation potential.

5.2 Suitability of Cornish Dorset Heath Sites for Re-creation

Where potential re-creation areas were identified by the Cornish Heathland Re-creation Plan, next to any of the Dorset heath sites listed in this study, the suitability of these areas was assessed.

Firstly aerial photographs flown in 1995 were used to check the re-creation areas were intact, then the areas were checked in the field for suitability.

Only five of the 22 sites supporting *Erica ciliaris* did not have at least one potential re-creation area adjacent (many of the sites had several). Three of these five were the roadside sites, the remaining two were Three Burrows and Chapel Porth Valley.

All of the re-creation areas seem feasible but all need more detailed investigation in the field: soil analysis, existing species composition etc. Liaison with landowners is also needed as it was not deemed appropriate to discuss re-creation at the time of seeking permission to survey *Erica ciliaris* sites for the current report.

6. RECOMMENDATIONS FOR FURTHER WORK

Further work is now needed:

- to produce an Action Plan for *Erica ciliaris* in Cornwall.
- to facilitate Countryside Stewardship Grants to help finance management of existing sites.
- to carry out more detailed assessment of the potential heathland re-creation areas adjacent to sites containing *Erica ciliaris.*
- to spend more time searching for the previously listed sites that were not refound during the course of this study.
- to seek out previously undiscovered *Erica ciliaris* sites which are likely to exist. e.g. if all the stream valleys in SW 74 were followed new locations would probably be found (L J Margetts pers.com.)

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GLOSSARY

ADAS **Agricultural Development & Advisory Service** - the technical arm of MAFF.

CNC **Cornwall Nature Conservation Site** - a non-statutory designation given by the Cornwall Wildlife Trust and notified with the local authorities, for sites of at least county wide importance for nature conservation. CNCs may also be SSSIs and NNRs.

CWT **Cornwall Wildlife Trust** - a registered charity which aims to safeguard the wildlife and wildlife habitat of Cornwall. Part of a national network of Wildlife Trusts throughout the UK.

CWT a non-statutory designation for areas of land which are owned or

Reserves leased by the Cornwall Wildlife Trust and managed as nature reserves.

EN the statutory service promoting the conservation of England's wildlife and natural features, nationally and locally. In England they advise the government on SSSIs/PSSSIs/SACs/NNRs/WCA.

MAFF Ministry of Agriculture, Fisheries and Food

NT **National Trust** - a non-statutory designation for areas of land owned and managed by the National Trust.

NNR **National Nature Reserve** - areas of national and sometimes international importance, declared, owned or leased by English Nature under Section 19 of the National Parks and Access to the Countryside Act (1949) and Section 35 of the Wildlife and Countryside Act (1981).

SAC **Special Area for Conservation** - designated under the EC Habitats Directive. All SACs are SSSIs NNRs or Special Protection Areas for Birds

SSSI **Site of Special Scientific Interest** - notified under Section 28 of the Wildlife and Countryside Act (1981) in recognition of their special biological and/or geological interest.

PSSSI **Potential SSSI** - an area which may meet the criteria for SSSI but not yet notified.

WCA **Wildlife and Countryside Act 1981 (as amended)** - national legislation Part I of which protects flora and fauna, Part II concerns habitat protection.

APPENDIX 1

Desk Study Information Source

From Flora of Cornwall" F. Hamilton Davey 1909.

7. Lizard Downs, *Bailey in Bot. Loc. Rec. Cl. Rep., 1884—6.* Kynance Cove, *Miss Warren l.c.* Porthleven, *Parsons.*

"Of all the varieties, the pre-eminently lovely one is that with double red flowers. This variety has been found wild in Cornwall: a specimen in my herbarium has its branches covered, for nearly their whole length, with the closely crowded flowers; and sweeter miniature resemblances of wreaths of roses cannot be conceived," *G. Luxford in Charlesworth's Mag. Nat. Hist., vol. 2, 1838, 620.*

ERICA Linn.

*E. ciliaris Linn. Ciliated Heath. "Four Burrow Heath."

Native. Atlantic. Woods, commons, roadsides. Locally abundant. P. July—September.

First record: "Sent from a bog near Truro by the late Rev. J. S. Tozer to Dr. Greville, 1828," *Lindley's Syn. Br. Fl., 1829.*

5. Newlyn East Down, *Vigurs.* North of Pendown, Perranzabuloe, *Martineau.* Perranporth. Common on heaths around Chyverton, *Tresidder.* Mithian. St. Agnes. Mount Hawke, *E. Richards.*

6. Allet Common, Kenwyn, *Reid.* Between Truro and Sparnick tunnel. Crofts between Sparnick tunnel and Bissoe. Chacewater. Carclew Woods! *Davies Gilbert.*

8. Croft near Ding Dong Mine, 1889, *Dymes.*

Specimens collected by Mr. Dymes are now in my possession. As far as he can remember after an interval of 19 years, Mr. Dymes thinks there was only one or perhaps two small plants there.

I have frequently found this species with white flowers.

*Hybrid. E. ciliaris × Tetralix. *E. Watsoni* Benth.

5. Quintrell Downs; Newlyn Downs, *Vigurs.* Tresawsen, Perranzabuloe, *Rilstone.* Penhallow near Mount Hawke, *E. Richards.* Perranporth, *Eagar.*

6. Tregavethan Bottoms, Kenwyn, *Tresidder.* Crofts between Truro and Sparnick tunnel! *H. C. Watson in Lond. Journ. Bot., vol. 3, 1844.* Between Sparnick tunnel and Bissoe. Carclew.

E. Tetralix Linn. Cross-leaved Heath.

Native. British. Heathy places, marshes, crofts, &c. Very common. P. June—September.

First record: Watson, Outlines Geog. Dist., 1832.

Common in all the districts; white flowers are frequent. Scilly Isles! *Townsend.*

Inuston + Vigurs —

8. Land's End, Dr. Church, *R.I.C., 1913, p. 228.*
" Dr. Church (*Floral Mechanism, 147*) describes and figures the inflorescence of this variety, which he found at Cape Cornwall, and shows that visiting insects crawl underneath the plant, between the flowers, which are turned downward, and the ground." *B.E.C., 1911, p. 25.*

Erica ciliaris, Linn.

5. A few plants on roadside near Penwartha House on road from Perranporth to Truro, 1921, W. D. Watson. Silverwell Moor, 1916, Rilstone, *B.E.C., 1916, p. 577.* " Chynhale near Perranzabuloe (Chynhale Farm adjoining Tresawsen Moor), 1911, Syme (*E.B., ed. III.*) and Bab. (*Man.*) state that both *Tetralix* and *ciliaris* have leaves four in a whorl, while *cinerea* has three in a whorl. This distinction does not hold good, at least in this locality, where plants of *ciliaris* with leaves three in a whorl were quite frequent." Barton, *B.E.C., 1918, p. 508.*

Hybrid **Erica ciliaris** × **Tetralix** (*E. Watsoni,* Benth).

5. " Quintrell Downs " *(Flora).* Delete the record. Mill Down, Ventongimps; swamp near Carnkief pond, Perranzabuloe; Silverwell Moor, Rilstone, *B.E.C., 1916, p. 577.* Chynhale, Barton, *B.E.C., 1918, p. 509.*

***E. Tetralix,** Linn, sub-var. **parviflora,** Druce.

7. Lizard Downs with the type, Druce, *B.E.C., 1913, p. 329.*

***E. cinerea,** Linn, var. **splendens,** Druce.

3. Valley from Minions to Upton, 1920, Harvey.
5. Newlyn Downs, Vigurs.
6. Carnon Croft, Kea, Davey. Kea Down, Druce.
" A striking form with long and densely flowered inflorescence. At Kea Down and Newlyn Downs it also has very large flowers. Vigurs, *R.I.C., 1913, p. 228.*

*Hybrid. **E. Tetralix** × **vagans** (*vagans* × *cinerea,* Davey, *Journ. Bot., 1910, p. 333;* Turrill, *Kew Bull., 1911, p. 378; R.I.C., 1911, p. 383. E. Williamsii,* Druce, *Gard. Chron., 2 Dec., 1911, p. 388.*)

7. Lane between Bochym and Goonhilly Downs. P. D. Williams. " This interesting hybrid was first noticed about fifty years ago by the late Mr. Richard Davey, M.P. for West Cornwall, but no record appears to have been made of it." Davey, *R.I.C., 1911, p. 383.*

FROM: A review of the Cornish Flora. Margetts and David (1981)

ERICACEAE

ERICA L.

357/1 E. tetralix L., Cross-leaved Heath (absent from Scilly), and 357/4 E. cinerea L., Bell Heather, are common heathland plants throughout the county.

357/3 E. ciliaris L. Dorset Heath

Remarkably frequent within an area bounded by Redruth, St Agnes, Perranporth, Mitchell, and Truro, with a few scattered outliers. Still in its old stations.

West: 42, Chy-an-hal Moor, originally planted by E.A. Rees in 1934, still there, post—1950, J.B.; 53, similarly planted on Marazion Marsh in 1934, E.A.R., not reported since; 71, near Erisey, the Lizard, R.H.; 72, Drytree, Goonhilly, R.H.; E of Gweek, R.H.; 73, Carclew Woods (Flora), still there in 1934 (Thurston 1935); 74, Carrine Common (Flora), still plentiful, various recorders; Chacewater (Flora), still there, J.H.S. (Thurston and Vigurs 1927); Penstraze Moor, P.Ga.; in two places near Tywarnhayle, P.Ga.; Mt Hawke (Flora), S of Mt Hawke, 1961, L.J.M.; Chapel Coombe, Mingoose, L.J.M.; Silverwell Moor (Suppt), still plentiful, various recorders; in two places near Silverwell, P.Ga.; Penwartha House (Suppt), 1954, P.Ga.; Trevaskis, near Tregavethan, P.Ga.; Allet Common (Flora), 1967, G.A.; Tresawsen, P.Ga.; 75, Mithian (Flora), 1965, L.J.M.; Chyverton (Flora), Wentworth Mines, post—1950, B.E.M.G.; Ventongimps Moor, still plentiful, various recorders; Carnkief, 1951, BRC, 1976, L.J.M.; Goonhavern, R.W.D.; 85, Newlyn East Downs (Flora), still plentiful, various recorders; Penhallow Moor, 1954, BRC; 1968, R.G.

*East: 85, SE of Carland Cross, 1956, BRC, 1976, in plenty, B.B.; 05, moorland NE of Bugle, J.A.P.

357/3 x 1 E. ciliaris x tetralix = *E. x watsonii* Benth.

A frequent hybrid wherever both parents occur.

West: 42, Chy-an-hal Moor, A.C.L. and R.B.; 71, and 72, on both Lizard sites for *E. ciliaris*, P.Tu; 74, Silverwell Moor (Suppt), still there, various recorders; Chacewater, J.H.S. (Thurston and Vigurs 1927); Carrine Common (Flora), still there, 1976, L.J.M.; 75, Goonhavern, R.W.D.; Carnkief, L.J.M.; Ventongimps Moor,

G.A. and L.J.M.; Wentworth Mine, Chyverton, P.Tu. *et al;* 85, Newlyn Downs (Flora), 1979, P.Tu.

*East: 85, SE of Carland Cross, P.Tu. *et al.*

357/1 x 8 **E. tetralix x vagans = *E. x williamsii*** Druce

A very rare hybrid heath, usually as a single plant.

West: 61, near Kynance Farm, J.A.P.; Kynance Downs, A.C.L. and R.B.; 71, Goonhilly Reserve, D.E.C.; 72, between Bochym and Goonhilly Downs, one mile from the station in Suppt (Thurston and Vigurs 1925).

357/6 § **E. lusitanica** Rudolphi — Spanish Heath

Naturalised in quantity along the main railway line between Lostwithiel and St Germans.

*West: 73, originally planted at Perranwell Station, and now spreading onto nearby banks, L.J.M.; 85, two bushes on railway bank between Goonhavern and Shepherds, 1968, L.J.M.

East: 16, near Restormel, Lostwithiel, D.Mc.; N of E Taphouse, D.Mc.; Doublebois Station (Suppt), 1958, D.Mc.; 26, in three spots near Looemills, Liskeard, D.Mc.; SE of Liskeard, D.Mc.; near Coldrenick, D.Mc.; 35, Trerulefoot, I.N.; W of St Germans, D.Mc.

357/8 **E. vagans** L. — Cornish Heath

The characteristic heath of the Lizard Peninsula from Trelowarren and Gweek to Lizard Point and St Keverne, with one outlier at Connor Downs.

West: 32, Porthgwarra, BRC (this record needs to be confirmed); 53, Connor Downs (Flora), still plentiful in the lane from Connor crossroads to Angarrack, various recorders; railway cutting E of Angarrack, J.S.R.; 61, 62, 71, and 72, common on the Lizard heathland. Scilly: only as a garden throw-out, Lousley 1971.

357/7 § **E. erigena** R. Ross — Irish Heath

A very rare introduction.

*East: 26, two plants by roadside two miles SE of Menheniot, 1958, D.Mc.

Scilly: Lousley 1971.

From:- Supplement to the Cornish Flora 1981-1990
Margetts + Spurgin 1991

PYROLACEAE

MONOTROPA L.

M. hypopitys L. (362/1) Yellow Bird's-nest
West: 63, garden, Baripper, Camborne, 1983, K.E.H. No doubt unintentionally introduced.

ERICACEAE

ERICA L.

E. ciliaris L. (357/3) Dorset Heath
West: 42, Chy-an-hal (*Review*), still there 1984, A.J.B. & M.G.B.H.; 84, Bussavean Meadows, near Truro, CTNCS.

E. × *watsonii* Benth. = *E. ciliaris* × *tetralix* (357/3 × 357/1)
West: 74, Chapel Porth valley, L.J.M., C.Tu. & P.Tu.

E. × *williamsii* Druce = *E. tetralix* × *vagans* (357/1 × 357/8)
West: 71, one plant, Goonhilly, C.Tu. & P.Tu.; one plant, Cow-y-jack, Crousa Downs, A.J.B., UBLP, conf. P.Tu.; 72, one plant near Leech Pool, M.G.B.H., UBLP, conf. D. McClintock.

E. lusitanica Rudolphi (357/6) Spanish Heath **Introduced**
West: 72, a strong colony in a woodland clearing near Lanarth, 1982, A.J.B., M.G.B.H. & L.J.M.

E. vagans L. (357/8) Cornish Heath
West: 32, one patch at Pedn-mên-an-mere, near Porthcurno, 1981-2, B.M.S.
forma *anandra* Turpin
West: 61, near Kynance Farm, the Lizard, 1977, P.Tu., *Watsonia*, **14**: 184.

PERNETTYA Gaud.-Beaupré

P. mucronata (L. fil.) Gaud.-Beaupré ex Sprengel (352/1) Prickly Heath **Introduced**
East: 21, Coombe Valley, north of Bude, T.D.

VACCINIUM L.

V. oxycoccus L. (358/4) Cranberry
East: 17, valley bog between Camperdown Farm and Garrow Downs, K.B., T.D. & R.J.M., *Bot. Newsl.*, 2.

MYRSINACEAE

MYRSINE L.

M. africana L. **Introduced**
Scilly: ⋆ T, by roadside and on wall near the Abbey Gardens, Tresco, 1971, J.R.P., det. D. McClintock, *BSBI News*, **36**: 23.

Records for Erica ciliaris

Grid Ref..	General location....	Collectors Name.....	Date.....
SW7943	CARRINE COMMON	MRS J.A. PATON	Before 1991
SW746451	NR CHACEWATER	DR G. HALLIDAY	Before 1991
SW7221	DRYTREE,GOONHILLY	M.R. HENNING	Before 1980
SW717185	GRADE RUAN	M.R. HENNING	Before 1980
SW448280	CHYHENAL MOOR	J. BECKERLEGGE	Before 1980
SW7445	NORTH OF CHACEWATER [SOUTH OF VIADUCT]	MR L.J. MARGETTS	Before 1980
SW72	LIZARD PENINSULA	MAJOR P.G. TURPIN	Before 1980
SW71	LIZARD PENINSULA	MAJOR P.G. TURPIN	Before 1980
SW7549	NR PENWARTHA HOUSE	F. RILSTONE	Before 1944
SW8244	NEAR TRURO	R.S. TOZER	1828
SW7838	CARCLEW WOODS	G. DAVIES	1838
SW8047	NEAR SHORTLANESEND	MR T. CRAGOE	1867
SW7644	SAVEOCK MOOR	MR W. CURNOW	1874 over 5 Years
SW7838	CARCLEW	MR J. RALFS	1874 over 5 Years
SW74	BETWEEN TRURO & ST AGNES	R.V. TELLAM	1879
SW7741	BISSOE	MR J. RALFS	1879
SW4334	CROFT NEAR DING DONG MINE	DYMES	1889
SW6951	ST AGNES	MR F.H. DAVEY	1909
SW7741	CROFTS BETWEEN SPARNICK TUNNEL AND BISSOE	MR F.H. DAVEY	1909
SW7948	ALLET COMMON,KENWYN	C. REID	1909
SW7951	CHYVERTON	W. TRESIDDER	1909
SW8244	BETWEEN TRURO AND SPARNICK TUNNEL	MR F.H. DAVEY	1909
SW7450	MITHIAN	MR F.H. DAVEY	1909
SW7554	PERRANPORTH	MR F.H. DAVEY	1909
SW7544	CHACEWATER	MR F.H. DAVEY	1909
SW7147	MOUNT HAWKE	E. RICHARDS	1909
SW7648	NORTH OF PENDOWN,PERRANZABULOE	MARTINEAU	1909
SW8256	NEWLYN EAST DOWNS	C.C. VIGURS	1909
SW84H	TRURO	E.A. REES	1915
SW7544	CHACEWATER	J.H.A. STUART	1925
SW7838	CARCLEW WOODS	MR L.J. MARGETTS	1934
SW5031	MARAZION MARSH	E.A. REES	1934
SW74	CHACEWATER AREA	ANON	1950
SW7221	GOONHILLY DOWNS EARTH STATION AREA	MR A.J. BYFIELD	1950 over 33 Years
SW7118	GOONHILLY DOWNS AREA	MR A.J. BYFIELD	1950 over 33 Years
SW4427	CHY-EN-HAL MOOR	REV J.E. BECKERLEGGE	After 1950
SW7951	CHIVERTON	B.E.M. GARRATT	After 1950
SW75	WENTWORTH MINES	B.E.M. GARRATT	After 1950
SW786521	CARNKIEF S.S.S.I.	ANON	1951
SW7851	VENTONGIMPS MOOR	ANON	1951
SW752487	NR SILVERWELL	P. GAY	1954

Records for Erica ciliaris

Grid Ref..	General location....	Collectors Name.....	Date.....	
SW738474	TYWARNHALE	P. GAY	1954	
SW742471	NR THREE BURROWS	P. GAY	1954	
SW752463	PENSTRAZE (CHACEWATER)	P. GAY	1954	
SW754485	SOTH OF PENWARTHA HOUSE	P. GAY	1954	
SW765465	TREVASKIS	P. GAY	1954	
SW788497	TRESAWSEN	P. GAY	1954	
SW756485	NR SILVERWELL	P. GAY	1954	
SW756495	SOTH OF PENWARTHA HOUSE	P. GAY	1954	
SW754497	S.PENWARTHA HOUSE	ANON	1954	
SW831549	PENHALLOW MOOR,NEWLYN	ANON	1954	
SW802475	WEST OF SHORTLANESEND	ANON	1954	
SW7549	PENWARTHA HOUSE	P. GAY	1954	
SW8255	PENHALLOW MOOR	ANON	1954	
SW745483	SILVERWELL	O. POLUNIN	1955	
SW7851	VENTONGIMPS MOOR	O. POLUNIN	1955	
SW7448	SILVERWELL MOOR	O. POLUNIN	1955	
SW830550	PENHALLOW MOOR	O. POLUNIN	1955	
SW8355	PENHALLOW MOOR	O. POLUNIN	1955	
SW855535	SOUTH EAST OF CARLAND CROSS	ANON	1956	
SW8453	S/E OF CARLAND CROSS	ANON	1956	
SW728209	EAST OF GWEEK	M.R. HENNING	1956	
SW7849	TRESAWSEN	P. GAY	1960	over 20 Years
SW7448	NEAR SILVERWELL	P. GAY	1960	over 20 Years
SW7646	TREVASKIS NEAR TREGAVETHAN	P. GAY	1960	over 20 Years
SX0158	N/E OF BUGLE	MRS J.A. PATON	1960	over 20 Years
SW7943	CARRINE COMMON	ANON	1960	over 20 Years
SW7117	NEAR ERISEY, THE LIZARD	MRS R. HENNING	1960	over 20 Years
SW7545	PENSTRAZE MOOR, (CHACEWATER)	P. GAY	1960	over 20 Years
SW7026	E. OF GWEEK	MRS R. HENNING	1960	over 20 Years
SW7347	NEAR TYWARNHAYLE	P. GAY	1960	over 20 Years
SW7544	CHACEWATER	J.H.A. STUART	1960	over 20 Years
SW7221	DRYTREE, GOONHILLY	MRS R. HENNING	1960	over 20 Years
SW7953	GOONHAVERN	R.W. DAVID	1960	over 20 Years
SW8453	S/E OF CARLAND CROSS	MR B. BOOTHBY	1960	over 20 Years
SW8254	NEWLYN EAST DOWNS	ANON	1960	over 20 Years
SW7146	SOUTH OF MOUNT HAWKE	MR L.J. MARGETTS	1961	
SW7147	MOUNT HAWKE (ST:AGNES)	MR L.J. MARGETTS	1961	
SW7148	CHAPEL COOMBE, MINGOOSE	MR L.J. MARGETTS	1961	over 20 Years
SW7448	SILVERWELL MOOR	ANON	1961	over 20 Years

Records for Erica ciliaris

Grid Ref..	General location....	Collectors Name.....	Date.....
SW7147	S. OF MOUNT HAWKE (ST.AGNES)	MR L.J. MARGETTS	1961
SW829537	NEWLYN DOWNS,NEWLYN EAST	MR L.J. MARGETTS	1962
SW7943	CARRINE COMMON.SOUTH OF TRURO	MR L.J. MARGETTS	3:MAR:1962
SW7851	VENTONGIMPS MOOR	J. BECKERLEGGE	1964
SW7450	MITHIAN	MR L.J. MARGETTS	1965
SW7448	SILVERWELL MOOR,NR.ST,AGNES	MR L.J. MARGETTS	19:SEP:1965
SW7450	MITHIAN,NR.ST.AGNES	MR L.J. MARGETTS	29:SEP:1965
SW7851	VENTONGIMPS MOOR	A. BURNS	1966
SX0158	NORTH EAST OF BUGLE	MRS J.A. PATON	21:SEP:1966
SW7852	CARNKIEF	MR L.J. MARGETTS	16:OCT:1966
SW738474	TYWARNHAYLE	MR L.J. MARGETTS	1967
SW7851	VENTONGIMPS MOOR	MR L.J. MARGETTS	1967 over 2 Years
SW7948	ALLET COMMON	G. ALLSOP	1967
SW703490	VALLEY FROM MINGOOSE TO CHAPEL PORTH	MR L.J. MARGETTS	FEB:1967
SW795489	ALLET,NR.TRURO	MR L.J. MARGETTS	7:MAY:1967
SW831551	PENHALLOW MOOR	R. GROOM	1968
SW8256	NEWLYN EAST	MRS LEDDRA	1968
SW8255	PENHALLOW MOOR	R. GROOM	1968
SW449281	CHYENHAL MOOR	MRS S.M. TURK	9:JUN:1968
SW448280	CHYENHAL MOOR	MISS B.M. STURDY	10:JUL:1971
SW75	VENTONGIMPS MOOR	MISS R.J. MURPHY F.H. PERRING	1972
SW7851	VENTONGIMPS MOOR	MISS R.J. MURPHY	1972
SW7221	DRYTREE,GOONHILLY	A.C. LESLIE	1975
SW448280	CHYENHAL MOOR	L. BRADSHAW	1975
SW855535	SOUTH EAST OF CARLAND CROSS	MR B. BOOTHBY	1976
SW7448	SILVERWELL MOOR	MR L.J. MARGETTS	1976
SW855535	MOOR S.E. CARLAND CROSS	MR B. BOOTHBY	1976
SW7950	VENTONGIMPS	MR B. BOOTHBY	1976
SW7852	CARNKIEF	MR L.J. MARGETTS	1976
SW781512	VENTONGIMPS MOOR	J. ROBERTS	4:AUG:1978
SW7448	SILVERWELL	J. ROBERTS	4:AUG:1978
SW7943	CARRINE COMMON	MAJOR P.G. TURPIN MAJOR E.W.M. MAGOR B.E.M. GARRATT MR L.J. MARGETTS	1979
SW751483	LANE TO SILVERWELL MOOR	MISS R.J. MURPHY	3:AUG:1979
SW795431	CARRINE COMMON	B. JACKSON MRS E. JACKSON	14:SEP:1979
SW7851	VENTONGIMPS MOOR	MISS R.J. MURPHY	1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980

Records for Erica ciliaris

Grid Ref..	General location....	Collectors Name.....	Date................
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW797490	ALLET BOG	ANON	20:MAY:1980
SW785521	CARNKIEF POOL AND ENVIRONS	B. JACKSON MRS E. JACKSON MR L.J. MARGETTS	21:JUL:1980
SW8246	BUSSAVEAN MEADOW,NR..TRURO	ANON	After 1980 over 10 Years
SW8047	BUSSAVEAN MEADOWS	ANON	1981 over 10 Years
SW42	CHYENHAL	MISS R.J. MURPHY MR M.D. HALLETT	29:FEB:1981
SW7851	VENTONGIMPS MOOR	MR M. JONES	MAY:1981
SW751483	LANE TO SILVERWELL MOOR	MRS S.M. TURK	5:AUG:1981
SW7851	VENTONGIMPS MOOR	MRS A. HATHWAY MRS J. KING MR R.S. BURROWS MR M.D. HALLETT MISS R.J. MURPHY	14:AUG:1981

Records for Erica ciliaris

Grid Ref..	General location....	Collectors Name.....	Date.....
		MRS S.M. TURK	
SW7851	VENTONGIMPS MOOR	MISS R.J. MURPHY	AUG:1982
SW71E		ANON	1983 over 7 Years
SW4427	CHYENHAL MOOR	MR A.J. BYFIELD M. HUGHES	1984
SW4428	CHY-EN-HAL	MR A.J. BYFIELD M.G.B. HUGHES	1984
SW75	VENTONGIMPS NATURE RESERVE.	DR L. JENKINS MR I. HILL	17:APR:1987
SW7851	VENTONGIMPS NATURE RESERVE	MR J. GOWENLOCK	1990
SW8255	FIDDLERS ELBOW AND PENHALLOW MOOR	DR C.N. FRENCH	2:SEP:1990
SW7953	CARN MOOR AND SUNNYSIDE, GOONHAVERN	MR I.J. BENNALLICK	1992
SW729478	NEAR GOVER FARM	DR C.N. FRENCH	28:JUL:1992
SW703486	NEAR TOWAN CROSS	DR C.N. FRENCH	29:JUL:1992
SW703486	NEAR TOWAN CROSS	DR C.N. FRENCH	29:JUL:1992
SW833549	AROUND EXPLOSIVES STORE, NEWLYN EAST	DR C.N. FRENCH	30:AUG:1992
SW711462	NEAR MANOR PARSLEY	DR C.N. FRENCH	3:AUG:1993
SW748482	SILVERWELL MOOR	DR D.T. HOLYOAK	13:AUG:1993
SW748482	SILVERWELL MOOR	DR D.T. HOLYOAK	13:AUG:1993
SW853533	TREWATERS VALLEY HEATH	DR C.N. FRENCH	23:AUG:1993
SW745452	CARNHOT	DR C.N. FRENCH	10:APR:1994
SW748484	SILVERWELL MOOR	DR C.N. FRENCH	1:AUG:1994
SW728478	PENHALLOW	DR C.N. FRENCH	22:AUG:1994
SW795428	NEAR CARRINE	DR C.N. FRENCH	23:MAR:1995

177 Records Processed

Based on visits made Sept 1962.

The Distribution and Occurrence of Erica ciliaris in Cornwall

On referring to the B.S.B.I. plant atlas Erica ciliaris is seen to occur in six 10 km squares in Cornwall, one in Devon and three in Dorset. The populations outside Dorset are now only small and fragmentary and this overall picture of the plants British distribution is rather misleading. It is probably true to say that at the present time there are as many or more plants of Erica ciliaris in the Hartland Moor Reserve as in all the Cornish sites put together.

The list of sites that follows (obtained largely from Gay 1957) is thought to include all the sites where the plant has been found recently but some of the smaller ones may have disappeared due to agricultural operations.

Penhallow Moor 10/830550

This area along with Newlyn Downs to the south still constitutes a reasonable sized piece of Heathland, much of the area being old mine workings. Erica ciliaris is abundant in a wetter area south of the railway line, and on drier slope.

Newlyn Downs 10/838539

Erica ciliaris is found in fair quantity on a north facing hillside along with Erica cinerea, Calluna vulgaris, Molinia, Deschampsia flexuosa, Carex panicea and Ulex spp. Conditions here seem dry for the species when compared with those found in Dorset but it is possible that the site may have been wetter in the past, although it is difficult to envisage it as ever being resembled "wet heath".

Ventongimps Mill Moor 10/781512

This site is well described in the files, but again many of the E. ciliaris plants are found growing in much drier conditions than they do in Dorset.

Carnkief Pond 10/785521

The species here would seem to be in some danger of being eliminated by growth of scrub; many of the plants are very "leggy".

Penwartha 10/755490

This is a roadside site, rather unusual in that the plants are growing on soil or turves that cover a stone wall. Again soil conditions are extremely dry.

Silverwell Moor 10/748483

A good site, and one where the plant is growing in conditions more like those found in Dorset. This is also a very good site for E. ciliaris x tetralix hybrids.

Allet Common & Kenwyn 10/795488, 10/789497, 10/803475

I have not visited these sites and do not know whether they still exist.

Penhallow/Mount Hawke 10/729479

A small site by the railway line most of which had just been severely burnt when I saw it in 1962.

Three Burrows 10/[illegible]

Carrine Common 10/797431

An area of heathland, again the impression gained was that many of the plants were growing in an area that may have been wetter in the past. In places the plant is still growing under reasonably moist conditions.

Gweek 10/728269

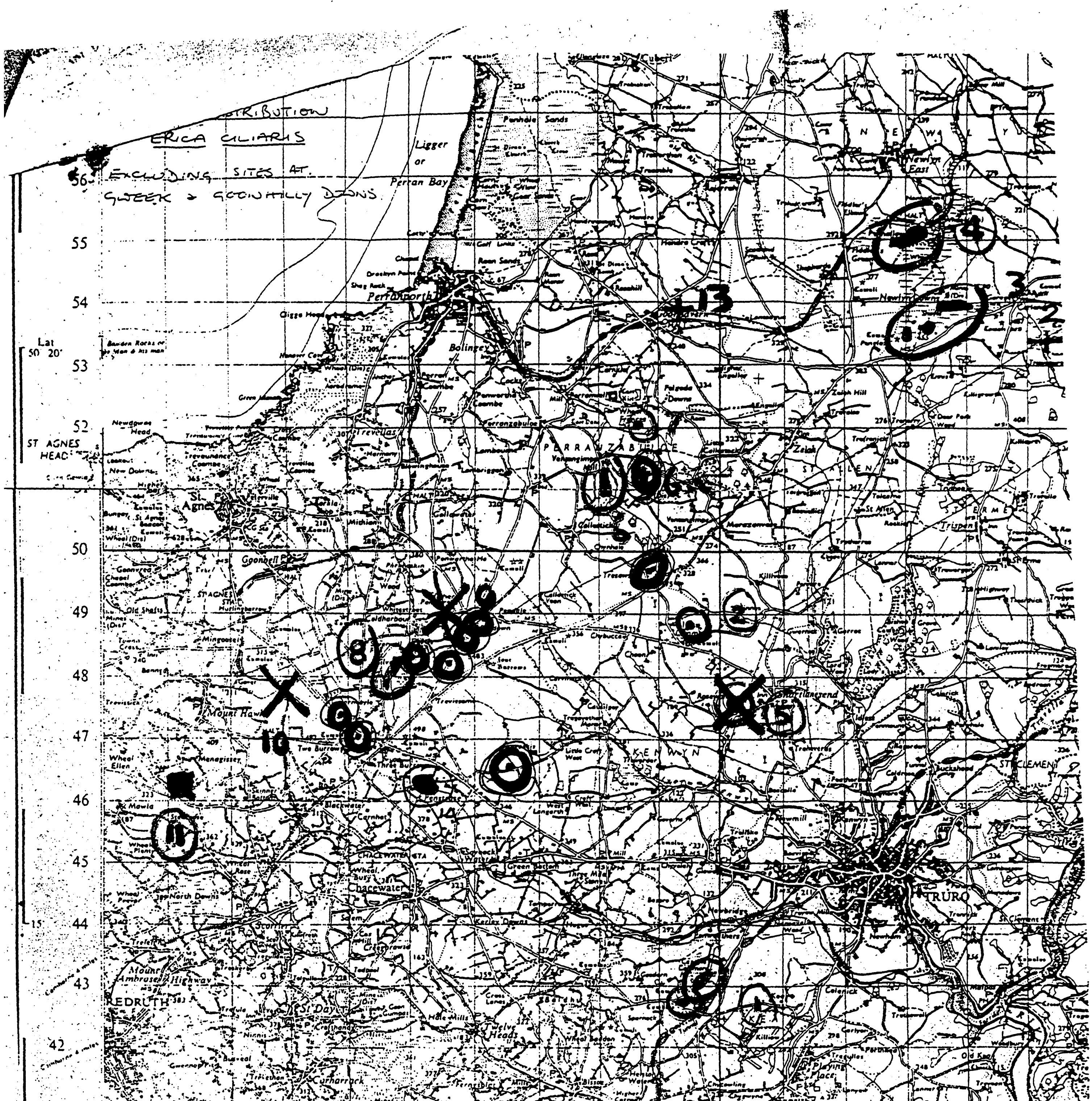
I have not visited this site and don't know its exact location. It was recorded on the B.S.B.I. maps scheme by a Mrs. R. Henning who lives at Gweek.

Goonhilly Downs 10/717185

A small site, just outside the S.S.S.I. boundary in an old field. The soil conditions in this field are rather different from those on Goonhilly downs proper, having a higher organic content, higher Calcium, higher Potassium and lower Magnesium. I don't know anything about the history of this site but doubt if the E. ciliaris can be considered native there. Its main point of interest is possibly that it is the only site where it grows alongside Erica vagans.

The overall impression gained about these Erica ciliaris sites in Cornwall is that they are fragments of a once larger and more extensive area now reduced and separated by agriculture, and that the plant is now restricted to sites such as roadsides, old mine workings and other sites which may not be at all typical of the main habitats that it once occupied in the area.

S.B. Chapman
Furzebrook


DISTRIBUTION
ERICA CILIARIS
EXCLUDING SITES AT
GWEEK & GOONHILLY DOWNS
Ligger or Perran Bay
Perranporth
Bolingey
St Agnes
ST AGNES HEAD
Chacewater
REDRUTH
St Day
TRURO
KENWYN
PERRANZABULOE
Zelah
Trispen
Mount Hawke
Goonhavern

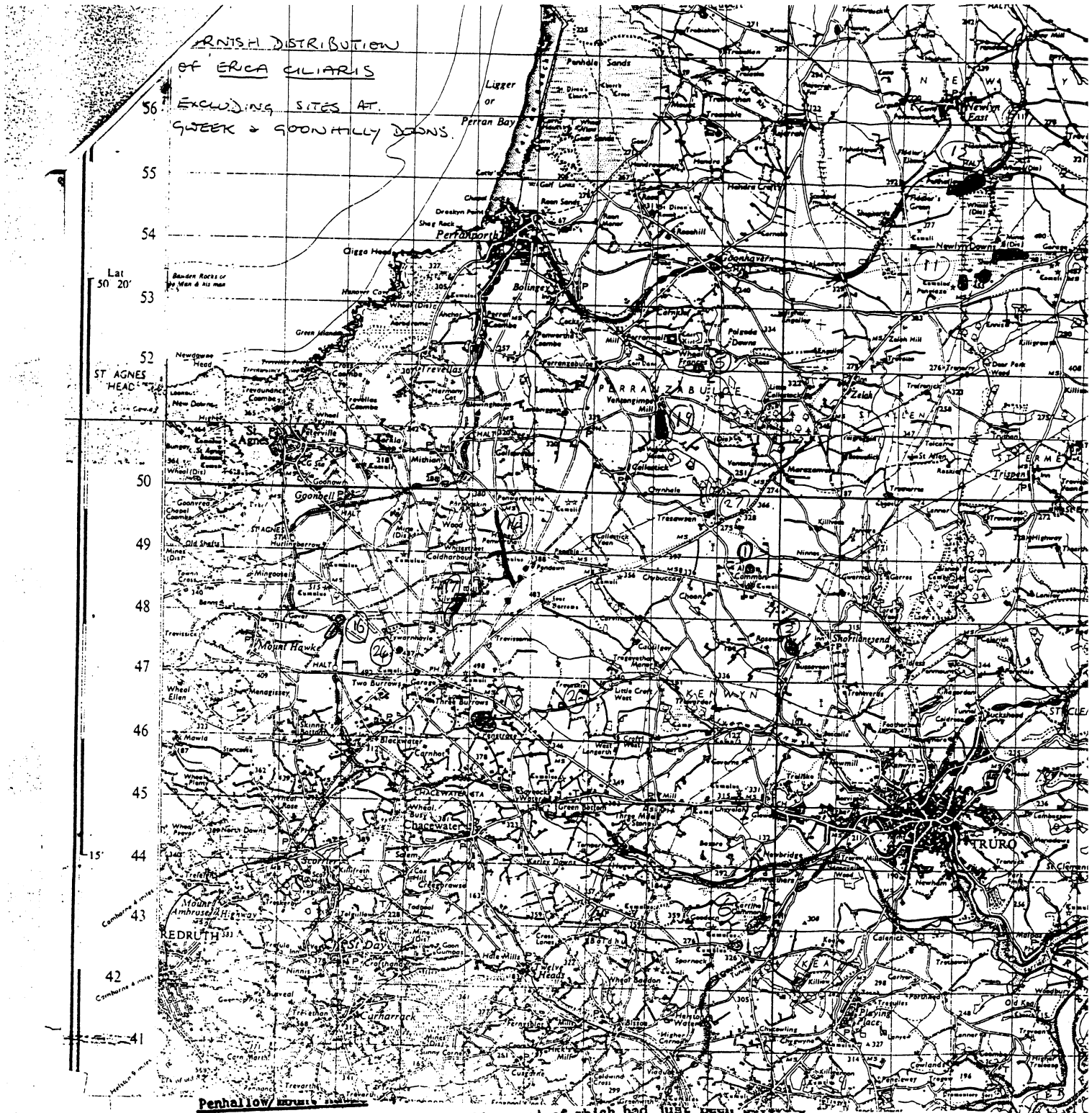
DORSET HEATH SITES - CORNWALL

		Name	Grid Ref	Dry ha	Wet ha
1		Carrine	79 43	6.2	
2		Allet bog	79 48	0.9	0.9
3		Newlyn Downs	83 53	U/K	U/K
4		Penhallow	83 55	-	2.2
5	*	Bussavean	80 47	*	-
6a		Ventongimps	78 51	2.8	2.9
b		"	786 512	fragment	-
7		Carnkief	785 521	U/K	U/K
8		Silverwell	748 483	-	1.0
9	*	roadside	755 490	on stone wall	-
10	*	railway	729 479	probably gone	-
11		Porthtowan	71 46	small	-
12		Carland Cross	85 53	small	-
13		Goonhaven	79 53	0.2	-
14		Pentraze	75 46	U/K	-

* only one or two plants present

The enclosed map. We do not have any information on the areas circled in blue, but these all appear to be small areas or a handful of plants along roadsides. The areas annotated in red are presented in the table above.

With the exception of those sites already notified as SSSIs, the area of Dorset Heath tends to be small. The only site that is of possible interest is Allet bog which I understand is or has been a 'proposed' SSSI.



Penhallow/Mount Hawke

A small site by the railway line most of which had just been

SITES FOR ERICA CILIARIS IN CORNWALL (UPDATE NOVEMBER 1991)

1. Penhallow Moor - 1954 and 1968 records but need to check.

2. Newlyn Downs (and Metha Wood) CTNC/PSSSI
Area = 128.2 ha. Of this wet Dorset heath constitutes 2.2 ha.

3. Ventongimps Moor - CTNC/SSSI

4. Carnkief Pond - CTNC/SSSI

5. Penwartha - roadside adjacent to Silverwll (recorded in 1962)

6. Silverwell Moor SSSI

7. Allet Common and Kenwyn (Allet Bog) - CTNC/PSSSI
= 21.26 ha with Erica ciliaris present amidst:-
(0.9 ha dry heath
(0.9 ha wet heath
The wet heath is in excellent condition and odd plants possibly down in the valley.

8. Penhallow/Mount Hawke (1962 record)
Also reported (in Margetts and David) - at Penstraze Moor PGA (South of Mount Hawke (CTNC)

9. Three Burrows (not visted in 1962)

10 Carrine Common - SSSI

11. Gweek - unsure of location in 1962. Margetts and David reports Erica ciliaris as being E of Gweek (RH)

12. Goonhilly Downs - SSSI/NNR

13. Chyenhal Moor - CTNC/SSSI - Originally planted by E A Reas in 1934 still there, post 1950. Also still there in 1984 - review of Margetts and David - AJB and MGBH, 84 Bussavean Meadows near Truro.

14. Carland Moor - CTNC/PSSSI
Area = 71.17 ha with Erica ciliaris amidst the
11.6 ha wet heath
1.9 ha Molinia tussock.

15. Bussavean Meadows - CTNC
Area = 5.48 ha
wet heath with woodlands
1 ha or so contains E.ciliaris

Nicola George
Assistant Conservation Officer
Cornwall

APPENDIX 2

Supplemental information on the status of *Erica ciliaris*/ Dorset Heath in Cornwall

Derived from a letter from S Hocking of the Cornwall Wildlife Trust to English Nature of 19 October 1998:

Site	Comments
Silverwell Moor	Land B* indicate *Erica ciliaris* in two fields to the south of the existing site and re-creation areas. Appears from aerial photos to possibly still be there. In addition *E. ciliaris* found on back of a heap of old mine spoil to the north of the SSSI (Carrick Heaths- Silverwell Moor sub-site) in 1998 by a Cornwall Wildlife Trust officer.
Carnkief	L and B* indicate a small area of *E. ciliaris* to the west of the existing site.
Goonhilly	L and B* give a precise, mapped location for the "Drytree" record, on the edge of a path next to a standing stone. S Hocking searched this area and did not find it. It could be beneath scrub or could have gone.
Chyenhal	A Spalding found three plants of *E. ciliaris* on a hedge in the south-east corner of the site (probably the original location referred to in the 1996 survey) in 1998. However L and B* refer to a sizeable colony within the SSSI, to the north-west of the 1998 record and estimated around 400 plants. There is a possibility it could reappear here if scrub were cleared.
Carrine Common	S Hocking found *E. ciliaris* in a further five enclosures at Carrine during survey work for an RSPB EC *Life* Project. The survey was carried out in October 1998 and the scrub had died back to some extent allowing better visibility and access to some areas not seen in the original visit as part of the 1996 study. These areas have been mapped onto the original survey sheets.

* Leslie and Bradshaw (1975). The ecology of rare plants in West Cornwall

The survey cards from this work covering the E. ciliaris sites are held at the Cornwall Wildlife Trust.

Further information about the above sites should be obtained from Sue Hocking of the Cornwall Wildlife Trust.