

TORBAY WILDLIFE SURVEY

Report on the Wildlife
Resource in Torbay



with the support of
Sainsburys

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TORBAY WILDLIFE SURVEY

1991

DEVON WILDLIFE TRUST

Report of a wildlife survey carried out by the
Devon Wildlife Trust as a joint project together with
English Nature, Torbay Borough Council and with
the financial assistance of Sainsbury's (J Sainsbury plc).

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ABSTRACT

In recent years, the social and ecological benefits of maintaining areas of wildlife habitat within urban areas have been recognised. As a result, many local authorities have commissioned wildlife surveys to ascertain the extent and value of wildlife habitats within their areas, so that overall strategies can be drawn up to protect this interest.

Torbay Borough Council have shown considerable commitment to wildlife in the past, but have been unable to develop a structured approach to nature conservation due to a lack of basic information on the wildlife and habitats within the Borough. With this aim in mind, the Devon Wildlife Trust (DWT) approached Torbay Borough Council (TBC) and English Nature with a proposal for a wildlife survey of Torbay.

The wildlife survey took the form of a 9 month project, joint funded by DWT (with the support of Sainsbury's), TBC's Arts and Recreation Department and English Nature. The 'survey' involved the collation of existing information held by the various conservation bodies and other individuals and a comprehensive field survey. An inventory was drawn up of all sites of wildlife interest within the Borough, and the most important sites identified and evaluated against the Trust guidelines on sites of (at least) County wildlife significance.

Torbay was found to support an outstanding selection of wildlife habitats. These include extensive areas of woodland and nationally important areas of species rich grassland, one community of which is unknown outside of the Borough.

Also of great significance is the complex of coastal habitats: 77% of the Torbay coastline was found to support semi-natural habitats, this representing an outstanding wildlife resource.

Torbay is also exceptional in that it supports a large number of notable plant species. Ten national rarities were recorded during the survey, including two species given special protection under Schedule 8 of the Wildlife and Countryside Act 1981. In addition, amongst a host of other wildlife, Torbay supports important seabird colonies and approximately 13% of the British population of the rare and declining curlew bunting.

The most important sites for wildlife in Torbay have been identified and described. Special reference has been made to their habitats, communities and species of particular conservation significance and their conservation requirements. These sites have been evaluated and defined as County Wildlife Sites and Local Wildlife Sites.

The report concludes that the identification of these important wildlife sites should ideally be followed by the establishment and implementation of a broad-based wildlife strategy for Torbay, with a suggested framework for such a strategy discussed.

1 INTRODUCTION

1.1 URBAN NATURE CONSERVATION

The urban environment as 'concrete jungle' is a concept firmly embedded in the popular imagination and traditionally few people associate urban areas with rich wildlife habitats. However, this view is changing. The life of the urban fox and kestrel have been well documented and in addition to these more obvious examples, it is now recognised that a wealth of wildlife flourishes within our cities, towns and other urban areas.

There are two major reasons why efforts should be made to conserve these urban habitats and the wildlife which occurs within them.

a) Ecological considerations

Throughout the country loss of important wildlife habitats in recent years has been alarming. Since the second world war, 97% of wildflower-rich grassland, 40% of ancient woodland, 40% of heathland, 50% of wetland and 125,000 miles of hedgerows have been destroyed (NCC 1984). As a result of such catastrophic losses in the countryside as a whole, the wildlife of urban areas has become all the more important.

Furthermore, as urban sites have been isolated from the harmful effects of intensified agriculture in the wider countryside, these can sometimes represent the best examples of wildlife habitats remaining.

In addition, due to the structural complexity of urban areas, there is often a rich mosaic of different habitats. This may result in a high degree of species diversity per unit of land area and, as a result, parts of urban areas can be much richer in wildlife than the corresponding extent of open countryside.

b) Social considerations

90% of the British population live in an urban environment. Many of these people do not have regular access to the countryside and so lack of natural habitats in the immediate vicinity of their homes deprives them of a great deal of pleasure and interest.

Studies have clearly shown the high value which most people place on the natural environment. In urban areas, these wildlife habitats represent areas where people can unwind and where the stresses of urban life can be temporarily forgotten. Here people can relax against a backcloth of birdsong, wild flowers and butterflies. In addition, the popularity of natural history programmes on television and radio, books on wildlife and the expanding membership of natural history organisations bears witness to the high level of interest in wildlife.

Also, it is particularly important to ensure that young people have contact with nature. They need an interesting and adventurous world to explore in everyday play. The jar of tadpoles, with its attendant smell of pond water, the daisy chain, the tree to climb and butterflies to chase should be the right of any child. This is as important to the future of nature conservation

as the protection of rare species in remote places.

Finally, an attractive natural environment is a strong factor in drawing economic investment to an area and so it ultimately leads to increased prosperity and a better quality of life for its residents. For an area such as Torbay, which flourishes on tourism, the value of such an attractive natural setting cannot be over emphasised.

1.2 THE NEED TO PLAN

It has already been stated that urban areas are often rich in wildlife, but the existence of important habitats for wildlife is often as a result of accident rather than design. In general, planners have paid little attention to wildlife and wildlife habitats until very recently. Of course, planning needs to consider and account for many demands on land use and the need for nature conservation has to be balanced against other needs. However, to ensure that nature conservation is not undersold, it needs to be regarded as a positive and valuable land use and be the subject of a planned approach.

It is most unlikely that within an urban area, a local authority would operate a planning system without reasonable knowledge of the built environment. Similarly, it would be difficult for an authority to provide for the needs of recreation or landscape without an appreciation of the resource or the pressures upon it. By this same token, if a local authority is to act efficiently and effectively in the interests of wildlife in the course of its work, it is vital that it is aware of the locations, extent and nature of sites of nature conservation interest. Such knowledge can only be provided through the possession of, or access to, up to date survey information. Thus a prerequisite for a planned approach to nature conservation is the provision of basic survey information on the wildlife and habitats of the area concerned.

1.3 BACKGROUND TO THE SURVEY

Although recognition of urban conservation is a relatively new idea, some local authorities have acted swiftly and efficiently in committing themselves to nature conservation. Torbay Borough Council (TBC) have shown considerable interest in nature conservation in the past. Large areas of land supporting a rich mosaic of wildlife habitats are owned by the Council and have been protected from development to provide areas of public open space. Most of this land is managed by the Arts and Recreation Department who employ two Countryside Officers and an Arboricultural Officer to provide, amongst other things, 'in house' expertise on the wildlife of the Borough and to manage these sites with this wildlife interest in mind.

Two areas, Berry Head and Cockington, have been designated as Country Parks and have been developed to provide major educational and recreational facilities and the Council have designated one Local Nature Reserve at Saltern Cove.

Despite this encouraging interest in nature conservation shown particularly by the Arts and Recreation Dept, TBC had been unable to develop a structured approach to nature conservation due to a lack of basic information on the wildlife and habitats within the Borough.

With this aim in mind, The Devon Wildlife Trust (DWT) approached TBC with the proposal of a wildlife survey of Torbay.

This wildlife survey was co-ordinated by the DWT and supported by funding from TBC's Arts and Recreation Dept and English Nature. Initially, the survey was proposed to last for a period of 6 months, but DWT were fortunate in obtaining further sponsorship from Sainsbury's to allow the continuation of the project for a further 3 months.

The DWT contracted Mr Leigh Lock to carry out the work and this report summarises the results of the survey.

1.4 AIMS OF THE SURVEY

The major aims of the survey can be summarised as follows:

- a) To identify and document the most important wildlife sites in Torbay.
- b) To provide information on the general wildlife resource within the Borough.
- c) To provide suggestions for the future management and conservation of sites owned and managed by TBC.
- d) To raise the profile of wildlife and nature conservation within the Borough as a whole.

2 THE WILDLIFE SURVEY

2.1 ORGANISATION OF THE SURVEY

After many months of planning and preparation, the project commenced on April 15th 1991 with the appointment of the author as the Wildlife Survey Officer. For the first three months, the survey work was concentrated on land managed by TBC's Arts and Recreation Dept and for the second three months on land in other ownership. The final three months were spent on the production of a detailed report.

The Wildlife Survey Officer had the assistance of a DWT Volunteer for a short period during the early part of the project, but otherwise worked alone. Assistance and guidance in the project was given by a Steering Group which comprised members of DWT, EN and TBC's Arts and Recreation and Planning Departments.

Office space and clerical support was provided by TBC's Arts and Recreation Department throughout the main survey period.

2.2 SURVEY METHODS

Maps (at a scale of 1:10,000) and aerial photographs of Torbay were used in conjunction with a comprehensive field survey to identify sites of possible wildlife interest. This involved checking all areas of undeveloped land.

Land use was recorded for all areas of undeveloped land and a series of habitat maps were produced using the Nature Conservancy Council's Phase 1 land use and habitat classification.

When areas of potential interest were identified, access permission was sought, and if gained, the areas were surveyed in detail. In many cases, visits were made at different times during the season to ensure comprehensive coverage of the site. If permission was not given, or access was impossible for some other reason, as for example along railway lines, the wildlife interest was ascertained as best as possible from existing public rights of way.

For all sites of wildlife interest, species data was compiled, usually on standard site recording cards. Due to lack of time available, it was not possible to carry out detailed vegetation sampling and analysis in order to assign plant communities to those described in the National Vegetation Classification (NVC). However, some attempt was made to describe in general terms the NVC communities represented in the Borough.

Considerable time was spent gathering existing data from all available sources and constant liaison with all relevant natural history groups was maintained throughout the survey. Sources of information included the DWT, EN, the Royal Society for the Protection of Birds (RSPB), the Devon Bird Watching and Preservation Society (DBWPS) the Torbay Natural History Society, the Devonshire Association, the Biological Records Centre at the Royal Albert Memorial Museum, Exeter and TBC's Arts and Recreation Department.

In addition, an attempt was made to contact individual naturalists with

specialist knowledge of certain areas or groups of species. However, due to the limited period of time available and the time-consuming nature of such work, it was clearly impossible to contact all individuals with potentially useful information.

All information collated in this way was combined with the field survey data to provide a comprehensive site inventory of the known wildlife interest of Torbay.

It should be noted that although a considerable amount of time was spent on surveying terrestrial habitats associated with the coast, the Torbay Wildlife Survey did not attempt to record and document the marine environment.

2.3 PRESENTATION OF DATA

A series of inventory maps were produced at 1:10,000 scale (the same as the Local Plan) on which all sites of wildlife interest were clearly marked and referred to by unique reference numbers.

Each reference number refers to detailed survey notes stored in files or on computer. Site files include a summary sheet available for quick and easy reference, together with detailed site information, species lists, general management objectives and in many cases, a simple photographic record of the site.

Sets of maps and data are held by the DWT and TBC, and EN have been provided with all information relating to SSSIs. The survey information will be incorporated into a computer data-base for the county that is being developed by DWT using the RECORDER system.

The DWT also have a series of Phase 1 habitat maps at 1:10,000 scale, with details of land use in Torbay.

2.4 SITE EVALUATION

Site evaluation is recognised as an important step in the building of a structured approach to nature conservation. The most important sites need to be recognised so that nature conservation policies can identify priorities for action.

In order that site evaluation was carried out in an objective manner, a series of guidelines drawn up by the DWT were employed. These guidelines are based on scientific criteria such as the size, species diversity and rarity of communities represented and the presence of rare or notable species. These guidelines are to be adopted in a county-wide approach to site evaluation and consequently sites identified within Torbay would be comparable to other sites outside the Borough and would fit into a standardised system of site evaluation. Using these guidelines, the DWT recognise two different site designations relating to two different levels of wildlife interest.

a) County Wildlife Sites

The guidelines were drawn up so that they would select sites that can be regarded as being of importance within the County of Devon. They represent the best examples of semi-natural habitats within the county and many are

likely to support rare and local species and communities. These sites have been termed County Wildlife Sites (CWSs).

It is hoped that throughout Devon, these County Wildlife Sites will form a network of sites from which Sites of Special Scientific Interest (SSSIs) may be selected.

b) Local Wildlife Sites

Clearly not all the sites of wildlife interest identified during the survey meet the strict scientific criteria necessary for selection of CWS's, but these are still of great value for wildlife within the context of Torbay. In addition, many of these sites may have particularly important social, educational, recreational, landscape, aesthetic or potential values that are not recognised in the selection of CWSs. For the purpose of this survey, these sites have been termed Local Wildlife Sites (LWSs).

It should be remembered that although recognition of wildlife sites is helpful, wildlife interest does not follow convenient site boundaries. The more mobile species, in particular, move freely across boundaries, and it is only through the adoption of a much broader approach to nature conservation that the wildlife of Torbay can be truly safeguarded.

3 THE WILDLIFE OF TORBAY

3.1 CHARACTERISTICS OF THE BOROUGH

The Borough of Torbay covers approximately 6,240 hectares (Ha) and has a population of approximately 117,300 (1986). It is divided into three towns, Torquay, Paignton and Brixham, with Torquay and Paignton representing the third largest and fourth largest towns in Devon respectively.

Although the area is primarily urban, it has experienced little industrial development, the major industry in Torbay being tourism. This industry is based on the range of holiday facilities and the local climate, but perhaps more significantly, on its exceptional coastline. Torbay's natural setting is magnificent and recognition is given in the Local Plan to "the unique relationship between landscape, seascape and townscape".

The three major towns are enclosed by a series of ridges to the north, south and west, each rising to between 120 and 180 metres above sea level. These ridges mark the administrative boundary of Torbay. Urban areas are confined almost entirely below 120 metres, with the majority below 90 metres, thus leaving a sometimes broad, rural fringe of considerable landscape value. The urban core of the Borough is dissected by a series of ridges and steep sided valleys that run down to the sea, some of these marking the boundaries between the three towns. The coastline is outstanding - some 33 kilometres (Km), comprising rocky cliffs with a series of 18 beaches, and including the spectacular limestone headlands of Berry Head and Hopes Nose that encircle the bay itself.

Within this context it is perhaps not surprising that although Torbay is considered an urban area, some 2901 Ha (46.5%) are not built-up. This area includes an outstanding range of wildlife habitats including woodland, species-rich grassland and coastal habitats, some of which are of restricted distribution within the county and some of national importance.

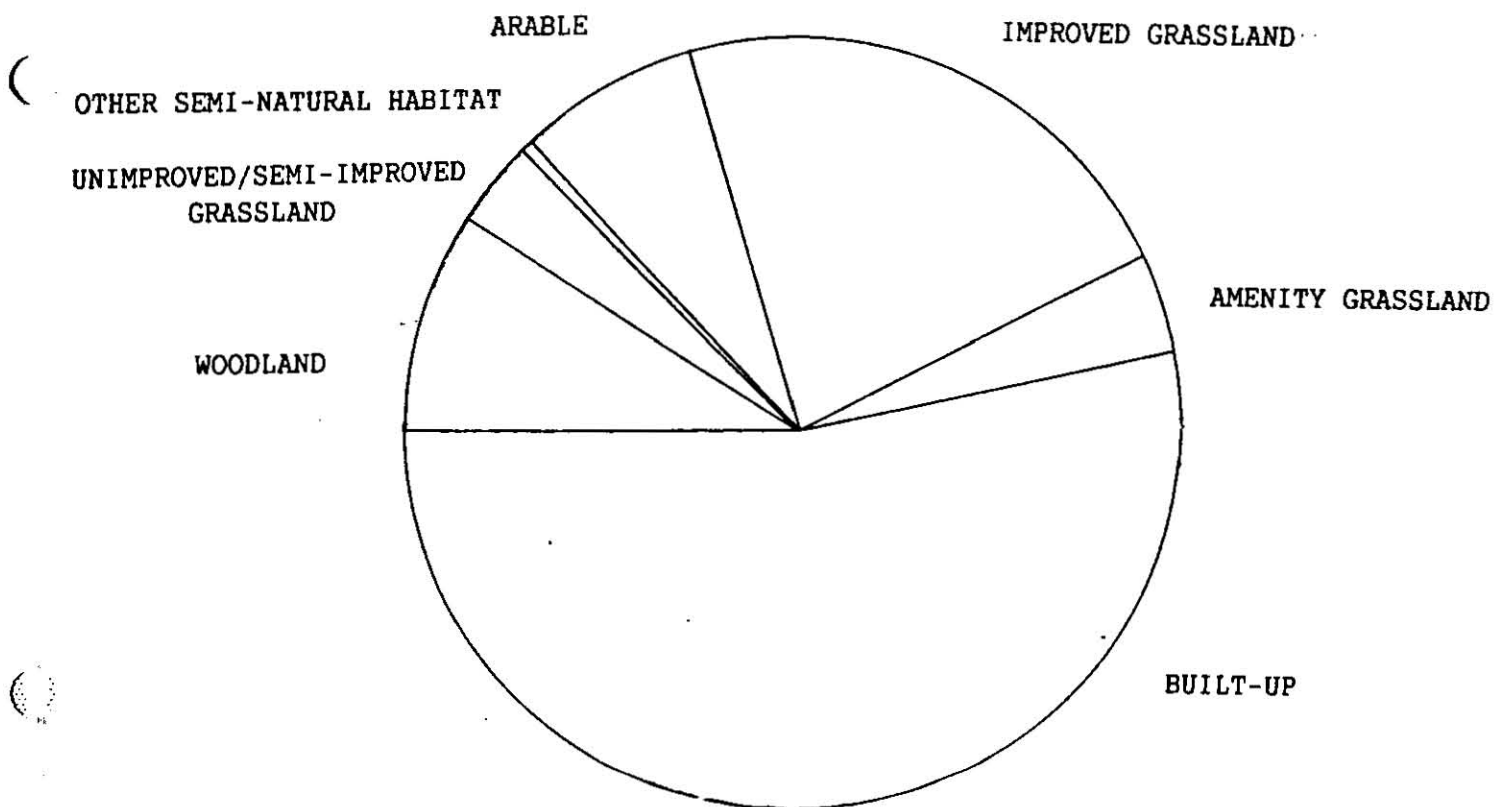
Table 1 shows area figures for various habitats identified during the wildlife survey.

TABLE 1
HABITATS WITHIN TORBAY

<u>HABITAT</u>	<u>AREA (HA)</u>		
	TOTAL AREA	% TOTAL AREA	%TOTAL NON BUILT-UP
<u>WOODLAND</u>			
Semi-natural broad leaved woodland	233.94	3.75	8.06
Scrub	141.76	2.27	4.48
Broad leaved plantation	20.04	0.32	0.69
Mixed plantation	103.04	1.65	3.55
Conifer plantation	23.92	0.38	0.82
Introduced Shrub	9.32	0.15	0.32
TOTAL WOODLAND	532.02	8.52	18.33
<u>GRASSLAND</u>			
Unimproved Calcareous	22.36	0.36	0.77
Unimproved Neutral	19.84	0.32	0.68
Unimproved Coastal	35.42	0.58	1.24
TOTAL UNIMPROVED GRASSLAND	78.12	1.26	2.69
Semi improved neutral grassland	134.50	2.16	4.63
Semi improved calcerous grassland	16.16	0.25	0.56
TOTAL SEMI IMPROVED GRASSLAND	150.66	2.41	5.19
TOTAL UNIMPROVED AND SEMI IMPROVED GRASSLAND	228.78	3.67	7.88
<u>OTHER</u>			
Heath	0.40	0.01	0.01
Bracken	11.20	0.18	0.39
Swamp	0.40	0.01	0.01
Tall Ruderal	7.88	0.13	0.27
Open Water	5.08	0.08	0.17
Arable	484.14	7.76	16.68
Improved Grassland	1385.82	22.21	47.75
Amenity Grassland	246.24	3.95	8.49
TOTAL OTHER	2141.16	34.32	73.78
TOTAL NON BUILT-UP	2901.96	46.51	100.00
TOTAL BUILT-UP	3338.16	53.49	-

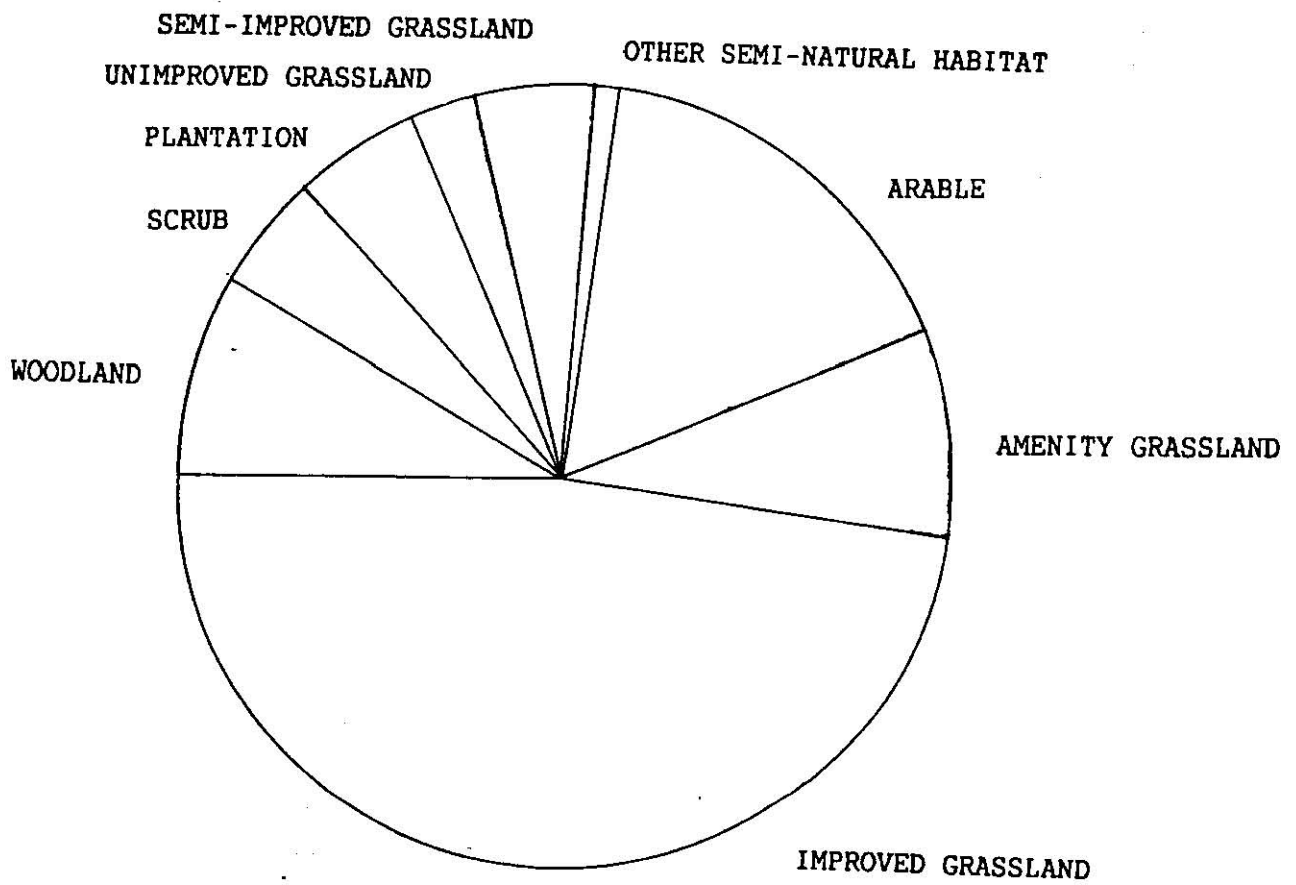
PIE CHART SHOWING PROPORTION OF VARIOUS HABITATS PRESENT WITHIN TORBAY

FIG 1



PIE CHART SHOWING PROPORTION OF VARIOUS HABITATS
PRESENT WITHIN NON BUILT-UP LAND WITHIN TORBAY

FIG 2



3.2 HABITATS PRESENT IN TORBAY

This section describes the major wildlife habitats found during the survey.

3.2.1 WOODLAND AND SCRUB

The link between woodlands and wildlife is widely appreciated and understood, although it is wrong to assume that all woodlands are of similar wildlife interest. The most highly valued woodlands in ecological terms are those that show a long history of continuous management as woodland, and are thus regarded as 'ancient'. As such ancient woodlands have been in existence for several hundred years, a complex ecosystem has developed supporting a greater diversity of animals and plants than are likely to occur in woodlands of more recent origin.

Although extensive areas of woodland occur in Torbay, analysis of old maps and reference to EN's Provisional Ancient Woodland Inventory indicate that very little of this is of ancient origin. Although the total area of woodland habitats in 1991 is in the region of 532 Ha, the total area represented by ancient sites is a mere 40 Ha. These ancient sites are scattered around the Borough with small areas occurring in the Clennon Valley, Ocombe woods and Lupton Park, a few pockets in the rural fringe of Paignton and the largest area at the Grove, Brixham.

The majority of woodland, however, is clearly of recent origin. Much of this has been planted, particularly during the first part of the nineteenth century, but considerable areas of woodland and scrub along the coast have developed through a process of natural succession from open grassland.

The woodland communities occurring in Torbay are all of a broadly similar type. In pure stands, they are typically characterised by dominant oak (*Quercus* spp.) and Ash (*Fraxinus excelsior*), an often diverse shrub layer and a varied ground flora, including a good selection of species favouring base-rich conditions. This general pattern has, however, been masked by extensive planting of broadleaves and conifers in some areas, and extensive invasion by Sycamore (*Acer pseudoplatanus*) in virtually all woodland stands.

In National Vegetation Classification (NVC) terms, three communities can be recognised. These are:

- a) W8e *Fraxinus excelsior* - *Acer campestre* - *Mercurialis perennis* woodland.
Geranium robertianum sub-community.
- b) W8d *Fraxinus excelsior* - *Acer campestre* - *Mercurialis perennis* woodland.
Hedera helix sub-community.
- c) W10c *Quercus robur* - *Pteridium aquilinum* - *Rubus fruticosus* woodland.
Hedera helix sub-community.

The most widespread semi-natural community can be described as a W8 *Fraxinus excelsior* - *Acer campestre* - *Mercurialis perennis* woodland, a large, variable community typified by a diverse, ground flora typical of base rich conditions and the presence of a series of southern, calcareous-loving (calcicolous) shrubs.

Within Torbay, examples have both ash and oak in the canopy with a variable amount of invasive sycamore. The shrub layer is very diverse and includes

dogwood (*Cornus sanguineus*), field maple (*Acer campestre*), spindle (*Euonymus europaeus*), guelder rose (*Viburnum lantana*), hazel (*Corylus avellana*) and hawthorn (*Crataegus monogyna*) with travellers-joy (*Clematis vitalba*) a locally abundant climber. A good selection of other trees include small leaved lime (*Tilia cordata*), wych elm (*Ulmus glabra*) and yew (*Taxus buccata*) and most stands include planted beech (*Fagus sylvatica*) and sweet chestnut (*Castanea sativa*). The ground flora is typically rich with bramble (*Rubus fruticosus*), dogs mercury (*Mercurialis perennis*), cuckoo pint (*Arum maculatum*), harts-tongue fern (*Phyllitis scolopendrium*), soft shield fern (*Polystichum setiferum*), bluebell (*Hyacinthoides non-scripta*), primrose (*Primula vulgaris*), early purple orchid (*Orchis mascula*), stinking iris (*Iris foetidissima*), herb-robert (*Geranium robertianum*), wood avens (*Geum urbanum*), false-brome (*Brachypodium sylvaticum*) and ivy (*Hedera helix*).

Most examples in Torbay fall neatly into the W8e *Geranium robertianum* sub-community characterised by an abundance of ivy in a species rich herb layer. This herb layer, in addition to the species listed above, supports several local species such as spurge laurel (*Daphne laureola*), wood spurge (*Euphorbia amygdaloides*), butchers broom (*Ruscus aculeatus*), stinking hellebore (*Helleborus foetidus*), goldilocks (*Ranunculus auricomus*) and moschatel (*Adoxa moschatelina*). This community is very well represented and often dominates the major woodland areas in the Borough, such as Occombe woods, Scadson Plantation/10 Acre Brake, The Grove and Lupton Park Woods.

The second woodland community present in Torbay, (W8d *Fraxinus excelsior* - *Acer campestre* - *Mercurialis perennis* woodland, *Hedera helix* sub-community,) is best represented in the coastal woodlands. Most of these are of very recent origin and although showing affinities with the previous community, are very species poor stands with ash and particularly sycamore overwhelmingly dominant. Here, ivy dominates the ground flora, which is much less diverse than in the previous community and the only regular associates are herb robert, harts tongue fern and, typically in the Torbay area, ivy broomrape.

The third woodland community was found to occur in slightly less base-rich conditions and was much more localised in Torbay. This is best described as a W10 *Quercus robur* - *Pteridium aquilinum* - *Rubus fruticosus* woodland. Here calcicolous herbs are rare in the field layer and the complement of calcicolous shrubs so distinctive of the W8 woodlands are absent. Instead bramble, bracken (*Pteridium aquilinum*) and honeysuckle (*Lonicera periclymenum*) are typically abundant with bluebell being the most abundant vernal dominant. The shrub layer is dominated by hazel and holly (*Ilex aquifolium*) and pedunculate oak (*Quercus robur*), sessile oak (*Quercus petraea*) and sometimes hybrids, are always present in the canopy.

The community in Torbay can be further classified to a W10c *Hedera helix* sub-community on a number of features, notably the abundance of ivy.

This community was found to occupy small areas, mostly within the valley woodlands such as Clennon, Occombe and Scadson Plantation, typically on steep slopes and always in close association with the dominant stands of W8e.

In addition to these three major woodland communities, a variety of scrub communities are present, along with small pockets of alder (*Alnus glutinosa*) and willow (*Salix cinerea*) woodland in suitable wet areas.

Also of particular note is the abundance in the Borough of Holm oak (*Quercus ilex*) scrub and woodland which has spread significantly in recent years, notably on suitably warm, sunny limestone slopes, predominantly along the coast. These stands are particularly species poor - the dense shade cast by this evergreen shrub prohibiting the growth of other species. Although extensive stands of this Mediterranean species contribute to the 'exotic' appearance of the Borough, not only do these areas support few of our native species, but they are also replacing important areas of open grassland and any further spread of Holm oak scrub should be prevented.

3.2.2 SPECIES RICH GRASSLAND

Grassland is a common habitat in Britain but the majority of this is represented by agriculturally improved pasture or re-seeded grassland of little wildlife interest. Areas of species-rich unimproved or semi-improved grasslands, that have suffered less from the harmful effects of modern agriculture, are becoming increasingly scarce and are considered amongst the most vulnerable and threatened habitats in Britain.

Unimproved grasslands represent the best examples of botanically-rich grassland. They have suffered least from agricultural intensification and poor management, tend to support the most species-rich communities and often support rare or local species. Semi-improved grasslands, although showing some signs of modification by artificial fertilisers, slurry, intensive grazing, herbicides or drainage, and consequently having a range of species which is less diverse and natural than unimproved grasslands, may still support moderately species-rich grassland communities and be of considerable wildlife interest.

Within Torbay distinctions between unimproved and semi-improved grasslands were often found to be indistinct. For that reason, this section deals with all botanically interesting unimproved and semi-improved grasslands under the term 'species-rich grasslands'.

Several superb examples of different grassland communities were found to be present in Torbay - this representing an outstanding wildlife resource, amounting to over 3% of the area of the Borough. The grasslands present can be broadly divided into three groups - neutral, maritime and calcareous grasslands.

3.2.2.1 Neutral Grasslands

These are semi-natural grasslands, generally of enclosed field systems, occurring where the soil is not markedly acid or very alkaline (usually pH 5.0 - 7.9) and developed on loams and clays.

This habitat, possibly more than any other, has been the victim of intensified agriculture since the 1940s and it is estimated that 97% of lowland neutral grassland has been lost in that period (NCC 1984).

Within Torbay, species rich neutral grassland has persisted for two main reasons. Firstly, as a result of urban sprawl, areas of farmland have been cut off from the countryside and have avoided the harmful effects of modern agriculture. Secondly, the steep sided valleys, notably those running down to the sea - Clennon, Occombe and Cockington - include areas that have proved too

steep to plough and re-seed, or improve and have remained relatively unspoilt. Unfortunately, many of these grasslands are suffering from inappropriate management, paradoxically involving either overgrazing or neglect. Overgrazing by horses has been a serious problem in Torbay, and in many cases, the grass sward has been broken up and large areas of bare earth created with stands of undesirable species such as thistles, docks and ragwort. On the other hand, neglect has led to a reduction in the number of species present, as competitive grasses dominate the sward, and ultimately to the loss of grassland as it is invaded by scrub.

However, despite these problems, some excellent examples of species-rich neutral grassland are to be found in Torbay. The complex of meadows at Occombe is outstanding and has been recently designated as a SSSI. In addition other good examples occur in the valleys mentioned above along with the Westerland valley, and as small areas on roadside verges, railway embankments and so on, scattered throughout the Borough.

Neutral Grassland Communities

Although the exact structure and species composition of grasslands was found to vary from site to site, considerable uniformity was noted between most of the sites.

The following NVC communities were identified:

- a) MG1 *Arrhenatherum elatius* coarse grassland
- b) MG5 *Centaurea nigra* - *Cynosurus cristatus* meadow and pasture

In most grasslands the dominants recorded were typically cocksfoot (*Dactylis glomerata*), sweet vernal grass (*Anthoxanthum odoratum*), brown bent (*Agrostis capillaris*), Yorkshire fog (*Holcus lanatus*), red fescue (*Festuca rubra*) and crested dogstail (*Cynosurus cristatus*) with false oat-grass (*Arrhenatherum elatius*) present at variable frequency, depending on the level of management and often achieving overwhelming dominance in unmanaged stands. Herbs were always found to be prominent in this sward and included common knapweed (*Centaurea nigra*), birds foot trefoil (*Lotus corniculatus*), burnet saxifrage (*Pimpinella saxifraga*), yellow rattle (*Rhinanthus minor*) and red clover (*Trifolium pratense*). In addition, most stands included a selection of calcicoles, such as quaking grass (*Briza media*), yellow oat-grass (*Trisetum flavescens*), salad burnet (*Sanguisorba minor*), ladies bedstraw (*Galium verum*), greater knapweed (*Centaurea scabiosa*), field scabious (*Knautia arvensis*), marjoram (*Origanum vulgare*) and wild carrot (*Daucus carota*).

In NVC terms, these grasslands would be best described as MG5 *Centaurea nigra* - *Cynosurus cristatus* meadow and pasture. Where the compliment of calcicoles is small, the community probably represents an example of the *Lathyrus pratensis* sub-community (MG5a) and where these species are particularly prominent, of the *Galium verum* sub community (MG5b). As the prominence of these species increases, the community shows close affinities to a calcareous grassland type.

In Occombe Meadows, the community more closely resembles the *Danthonia decumbens* sub-community (MG5c), due to the absence of many of these calcicoles, and the presence of a compliment of species more characteristic of calcifugous grasslands, such as Devils-bit scabious (*Succisa pratensis*),

tormentil (*Potentilla erecta*), betony (*Stachys officinalis*) and lousewort (*Pedicularis sylvatica*). This is the only site in Torbay where this community was found.

With a decrease in the level of management, and an increase in false oat grass and other coarse grasses, these communities were all found to be developing into MG1 *Arrhenatherum elatius* coarse grassland. Here, false oat grass dominates, with cocks foot and Yorkshire fog and there is usually only a scattering of herbs. These herbs typically include hogweed (*Heracleum sphondylium*), stinging nettle (*Urtica dioica*), knapweed and creeping thistle (*Cirsium arvense*), but in some of the more calcareous stands, include greater knapweed, field scabious and agrimony (*Agrimonia eupatoria*). Such communities were found to be widespread within Torbay.

3.2.2.2 Calcareous Grassland

Calcareous grassland typically occurs on unenclosed land, and is associated with chalk and limestone where shallow rendzina-type soils (ph 6.5 - 8.5) occur.

It is a very localised grassland type, restricted to the chalk hills of southern England and various limestone areas in the north and west. Within Devon, it is largely confined to the chalk hills of East Devon, between Sidmouth and Beer Head, and to the limestone outcrops of Torbay and Plymouth. Torbay supports the most extensive stands of calcareous grassland in Devon.

In Torbay, the occurrence of calcareous grassland is linked to outcropping Devonian limestone. These areas of limestone grassland are more or less restricted to the coastal strip, where the habitat is scattered from Sharkham Point, north to Watcombe.

In the past, much of this coast would have been covered by open grassland. However, it is now largely dominated by scrub and woodland. Early maps show a system of rough fields with small stands of scrub in suitably sheltered areas, and even aerial photographs taken in the 1940s show significantly more grassland than remains today. Loss of grassland and the development of scrub probably resulted from the isolation of the coastal strip from the surrounding farmland and the subsequent breakdown of the traditional farming system on the downland - possibly sheep grazing. The situation has been exacerbated by the recent decline in the rabbit population. Although clearly the current mosaic of woodland, scrub and grassland on the coast marks the area of great value for a variety of wildlife, the importance of these limestone grassland areas cannot be over-emphasised and considerable effort should be made to, at least, stop further development of scrub, and maintain current areas of grassland.

Due to the rarity of calcareous grassland in Devon, these areas support a large number of species that are very localised in the county. More significantly, the limestone grassland of Torbay includes communities that are unknown outside the Borough and a large number of nationally rare plant species. The most extensive areas occur on Walls Hill and Berry Head.

Calcareous Grassland Communities

The identification of calcareous grassland communities was found to be extremely difficult, largely as a result of the complex system of

environmental variables operating in most of the sites where these communities occur. Firstly, as most of the sites are coastal, there is a strong maritime influence in places and 'coastal' species may become significant elements of the community in some areas. In addition, differences in aspect, steepness of slope, soil depth and levels of grazing, cutting and disturbance all combine to produce a very complex mosaic of different grassland communities, often in a very small area.

However, two different communities were recognised. These broadly correspond to communities identified in the NVC in their pure form but it must be stressed that variability in both sward structure and composition was significant, even on a very small scale. These NVC communities are:

- a) CG1b *Festuca ovina* - *Carlina vulgaris* grassland.
Scilla autumnalis-*Euphorbia portlandica* sub-community.
- b) CG2 *Festuca ovina* - *Avenula pratensis* grassland.

The first community has a short, open, tussocky turf, usually interrupted by fractured rock outcrops and small patches of bare soil, and was found to rarely form any extensive stands. Grasses typically include cocksfoot (*Dactylis glomerata*), sheeps fescue (*Festuca ovina*), red fescue (*Festuca rubra*) and crested hairgrass (*koeleria macrantha*) but it is the herbs that give the grassland its distinctive character - these including low growing woody perennials such as wild thyme (*Thymus praecox*), Portland spurge (*Euphorbia portlandica*) and Salad burnet (*Sanguisorba minor*). Another significant component of this open sward is the presence of a series of small annuals, occurring at variable levels of abundance from year to year. These include various species of mouse-ear chickweed (*Cerastium* spp.), two species of sandwort (*Arenaria* spp.) and national rarities such as small rest harrow (*Ononis reclinata*) and small hares-ear (*Bupleurum baldense*).

Other typical species include autumn squill (*Scilla autumnalis*), kidney vetch (*Anthyllis vulneraria*), horseshoe vetch (*Hippocrepis comosa*), ploughmans spikenard (*Inula conyza*), biting stonecrop (*Sedum acre*), rock stonecrop (*Sedum forsteranum*), Carlina Thistle (*Carlina vulgaris*) and white rock rose (*Helianthemum apenninum*). Widely naturalised in this grassland is red valerian (*Centranthus ruber*) and the more recent escapee from seaside gardens, cineria (*Senecio cineraria*), a west Mediterranean ragwort.

In NVC terms, this community can be classified as a *Festuca ovina* - *Carlina vulgaris* grassland, of the *Scilla autumnalis* - *Euphorbia portlandica* sub-community (CG1b) - this community being confined entirely to Devonian limestone in Torbay. This community type supports a series of nationally rare species and represents the single most important plant community present in the Borough.

The second community identified, which was found to form the more extensive stands of calcareous grassland in Torbay, has a closed sward of dominant grasses and abundant herbs. These grasses include sheeps fescue, cocks foot, quaking grass, yellow-oat grass, crested hair grass, downy oat grass (*Avenula pubescens*) and false brome, with false oat grass becoming dominant in unmanaged stands. Herbs typically include abundant salad burnet, dropwort (*Filipendula vulgaris*) and birds foot trefoil, along with a large number of other species comprising a very species rich sward. These include pyramidal orchid (*Anacamptis pyramidalis*), bee orchid (*Ophrys apifera*), pale

flax (*Linum bienne*), small scabious (*Scabiosa columbaria*), wild thyme, marjoram, ladies bedstraw, wild carrot, horseshoe vetch, squinancy-wort (*Asperula cynanchica*), purging flax (*linum catharticum*) and mouse-ear hawkweed (*Hieracium pilosella*).

Assigning this community to a known NVC type is difficult. The community would seem to have closest affinities with a CG2 *Festuca ovina* - *Avenula pratensis* grassland, particularly with reference to sward structure, general species composition and with the high species diversity. However, this community is more typically associated with the chalk downland of southern and south-eastern England and many of the community preferentials are very much on the edge of their range in Devon, and are consequently rare or absent from the communities occurring in Torbay. For example, meadow oat grass (*Avenula pratensis*) would seem to be largely replaced by downy oat grass within this community in Torbay.

It is felt that this community requires further study and it is possible that although sharing close affinities with the CG2, this community may be unique to Torbay, like its close associate the CG1b.

In unmanaged stands of calcareous grassland, false-oat grass becomes dominant and the community develops into the MG1 *Arrhenatherum-elatius* coarse grassland described in the previous section.

3.2.2.3 Maritime Grassland

General

The third type of grassland occurring in Torbay is that which is entirely confined to the maritime fringe of Great Britain and supports many species restricted to the coast. In Torbay, the combinations of generally mild climate and calcareous soils makes these maritime communities floristically rich, and notable for the presence of a number of rare species.

Although like calcareous grasslands, sometimes affected by heavy cliff top trampling by tourists, these areas are ungrazed and unmanaged and it is likely that scrub invasion has caused a serious loss of this habitat in recent years. However, despite the reduction in the extent of maritime grassland, this habitat is represented by small areas along the entire stretch of Torbay coastline.

Communities

Due to the complex mosaic of vegetation of coastal sites, the identification of communities was found to be difficult. Although all sites were characterised by the presence of, and often dominance of, red fescue, along with maritime species such as thrift (*Armeria maritima*) and bladder campion (*Silene vulgaris* subs *maritima*), these maritime grassland communities were found to vary considerably from one area to another. The communities were found to grade from open, very species poor communities of ledges and crevices supporting strictly maritime species, to closed grass-dominated communities with a mix of both maritime and inland species.

The NVC recognises twelve maritime cliff communities, of which nine were tentatively identified during the survey. Some of these are particularly associated with the chalk and limestone cliffs of Southern England and are of very local distribution.

These communities are:

- MC1 *Crithmum maritimum* - *Spergularia rupicolor* maritime rock crevice Community.
 - a Typical sub-community
 - b *Inula crithmoides* sub-community
- MC4 *Brassica oleracea* maritime cliff ledge community
 - a *Beta vulgaris* subs *maritima* sub-community
 - b *Ononis repens* sub-community
- MC5 *Armeria maritima* - *Cerastium diffusum* subs *diffusum* maritime therophyte community
 - a *Desmazeria marina* sub-community
 - b *Anthyllis vulneria* sub-community
 - c *Aira praecox* sub-community
 - d *Arenaria serpyllifolia* sub-community
- MC6 *Atriplex hastata* - *Beta vulgaris* subs *maritima* Seabird cliff community
- MC7 *Stellaria media* - *Rumex acetosa* seabird cliff community
- MC8 *Festuca rubra* - *Armeria maritima* maritime grassland
 - a *Crithmum maritimum* sub-community
- MC9 *Festuca rubra* - *Holcus lanatus* maritime grassland
- MC11 *Festuca rubra* - *Daucus carota* subs *gummifera* maritime grassland
 - a *Bromus hordaceus* subs *ferronii* sub-community
 - b *Ononis repens* sub-community
 - c *Sanguisorba minor* sub-community
- MC12 *Festuca rubra* - *Hyacinthoides non-scripta* maritime bluebell community
 - b *Ranunculus ficaria* sub-community

Clearly with so many communities involved, the relationships between them are very complex. However, the general pattern can be described as follows:

There is generally a seaward zone of the *Crithmum* - *Spergularia* crevice community (MC1), or the *Brassica* ledge community (MC2) on vertical cliffs and ledges.

In dry, sunny areas, where the soil remains shallow, these communities give way to the *Festuca* - *Daucus* community (MC11), its three sub-communities themselves sometimes zoned according to a general decrease in maritime influence as one proceeds inland. This community then grades into calcareous grassland. Rock outcrops surrounded by thin, excessively drained soils, may support small area of the *Arenaria* - *Cerastium* therophyte community, the *Desmazeria* sub-community in the more maritime situations, the

Armeria community in the less maritime.

Where cliffs support deeper, moister soils, the crevice vegetation is replaced by the Festuca - Armeria maritime grassland (MC8), particularly the Crithmum sub-community, which itself gives way to Festuca - Holcus maritime grassland (MC9). Some particularly damp and generally north facing slopes, support the Festuca - Hyacinthoides bluebell community.

These maritime cliff communities clearly need further study so that the relationship between them is more clearly understood, but the presence of so many of these communities reflects the importance of Torbay's coastline.

3.2.3 HEATHLAND

One very small area of heathland exists on Berry Head. It is likely that this occupies a much smaller area than in the past, as it would appear that gorse has invaded most of this site and now forms extensive stands of tall scrub.

The remaining fragment of heath supports bell heather (*Erica cinerea*) and western gorse (*Ulex gallii*) which dominates the low shrub cover, and a selection of calcicolous species such as salad burnet, dropwort, quaking grass, hairy oat-grass, ladies bedstraw and betony. Although heather (*Calluna vulgaris*) was not noted in this small area, it has been recorded in the past and may still occur elsewhere. This area can be regarded as 'limestone heath' - a rare habitat and one of very high nature conservation value.

In NVC terms, this community would be best described as H4c *Calluna vulgaris* - *Ulex gallii* heath, *Sanguisorba minor* sub-community, despite the apparent lack of heather.

The future of this tiny relict area of heathland is still threatened by invasive scrub. Enterprising management by TBC's staff to clear scrub and recreate open heath is to be applauded and it is hoped that work will continue to allow an expansion of the current area of heath on Berry Head.

3.2.4 WETLANDS

In contrast to woodlands and species-rich grasslands, wetlands are poorly represented within the Borough. There are no rivers and areas of standing water are very limited.

A handful of small streams draining from surrounding farmland towards the sea in places support small adjacent stands of marshy grassland and fen vegetation. In the Clennon Valley, water has been diverted to supply a series of ponds. The upper ponds lie within the zoological gardens, but further down the valley, TBC have created a series of pools to attract wildlife. This site is by far the most significant area of open water in Torbay and supports interesting aquatic and marginal flora with some extensive stands of bulrush (*Typha latifolia*). This site has considerable wildlife value and further interest may develop as the plant communities mature. Other important sites within Torbay include Broadsands Marsh, where TBC are carrying out management to maintain areas of open water and fen, and a series of pools at Barton. Elsewhere, there are a few concrete lined

ornamental ponds situated in formal areas of parkland, which despite having no associated semi-natural vegetation and suffering from high levels of disturbance still manage to attract water birds and aquatic invertebrates.

3.2.5. COASTAL HABITATS

Torbay has some 33 km of coastline, of which 25 km (77%) support semi-natural vegetation - a surprisingly high total for an area associated with such intense coastal development for tourism and recreation. This coastline is incredibly diverse with a series of vegetated and unvegetated cliffs, steep slopes and ledges of various different substrates, sandy rocky and shingle beaches, marine caves and offshore islands. Although not studied during the wildlife survey, in addition there is a great diversity of intertidal habitats which is known to support an outstanding flora and fauna.

The coastal strip largely supports woodland, scrub and grassland communities that have already been discussed, but it is important to remember that since they occur within a few metres of the sea, examples of these habitats are very different to those occurring further inland. Small, but significant differences in microclimate and microhabitat ensure that these coastal sites are suitable for a great number of species that do not occur any distance from the sea.

To date, TBC have achieved a remarkable balance in allowing commercial interests to flourish without causing large scale damage to, and loss of important coastal habitats. The value of this area cannot be over-emphasised and it is hoped that TBC continue to enforce such strict controls of development of this invaluable wildlife resource.

3.2.6. FARMLAND

Farmland accounts for something like a third of the area of Torbay and dominates the western fringe of the Borough.

Although traditionally, agricultural land has supported the bulk of Britain's wildlife, changes in agricultural practise since the second world war have drastically reduced the wildlife value of much of this farmland. The ploughing up and re-seeding of traditional pastures, the use of herbicides, pesticides and fertilisers, the drainage of ponds and wetland areas and the removal of hedges and copses have all taken their toll.

In Devon, this agricultural improvement has had a less dramatic effect on the wildlife interest than in some other areas of Britain and typical Devon farmland still retains many features of interest. Of particular interest are the connecting series of ancient hedgerows and green lanes which form, essentially, linear examples of ancient woodland. Such areas also support stands of species-rich grassland and in some places areas of wetland.

Within Torbay, farmland areas not only have high landscape value, but must be considered as important areas for wildlife, particularly within the context of this largely urban environment. However, much can be done to improve these farmland areas for wildlife and encouragement should be given to farmers and landowners to show a greater understanding of the needs of wildlife and adopt a more sympathetic approach to farming, particularly

during these times of food surpluses, when increased productivity is no longer paramount. Wherever possible, farmers should not only be encouraged to retain natural features for wildlife, but to replace what has been lost in the past.

3.2.7 GREENSPACE

This term is used here to describe intensively managed and regularly mown amenity grassland, typical of lawns, playing fields and urban parks, in which perennial rye-grass (*Lolium perenne*) predominates. Also included within this category is what is often called 'urban savannah', which consists of amenity grassland as described above with occasional standard trees often of non-native species.

This habitat was estimated to cover some 246 Ha in Torbay, something like 4% of the Borough and representing a larger area than all the species rich grasslands put together.

The value of this habitat to wildlife is very low and in addition it is costly to maintain and considered by many to be unattractive to look at. Whilst recognising the function served by such areas, it is hoped that at least some of this could be managed in a more sympathetic way to provide further habitat for wildlife in Torbay.

3.2.8 GARDENS

It was clearly impossible to visit every garden in Torbay and assess its wildlife interest. However, the complex of private gardens as a whole is likely to represent a very significant area of wildlife-rich habitat in the Borough.

Gardens have always been important for wildlife, but conventional gardening with its emphasis on cultivated flowers, 'tidiness' and the control of pests often produces a rather hostile environment for many creatures. In recent years, the concept of wildlife gardening has spread and many more gardeners have now adopted a more sensitive approach. As this change in attitude has occurred against a background of continual loss of wildlife habitat elsewhere, the increasing importance of gardens for wildlife can be fully appreciated.

In Torbay, some of the suburban gardens, particularly in the older parts of Torquay are large, secluded, and often represent a microcosm of the countryside, with stands of woodland, scrub and grassland, hedgerows, compost heaps, walls, rockeries and ponds. Garden ponds are of particular note in that they may represent important areas for amphibians and aquatic insects, which have a shortage of natural sites in Torbay.

In other areas, gardens may be important in that they represent the only wildlife habitat in heavily built-up parts of Torbay.

Gardens clearly already represent a very important area for wildlife, particularly in urban situations, but much of their potential for wildlife is yet to be realised. In 1985, there was an estimated 7.5 million hectares of garden in Britain (Baines 1985) representing some thirty times the total area of nature reserves managed by the county wildlife trusts. This vast

area of land can be considered as potential 'nature reserve' where all sorts of wildlife could be allowed to flourish. In Torbay, this resource remains largely untapped and encouragement should be given to gardeners to embrace the concept of wildlife gardening and make a significant contribution to the conservation of much of the wildlife of the Borough.

3.3 SPECIES PRESENT IN TORBAY

3.3.1 VASCULAR PLANTS

3.3.1.1 General

The diversity of habitats has already been discussed, so it is hardly surprising that Torbay supports a very diverse flora. Approximately 560 species were recorded during the survey, representing nearly 40% of the total number of vascular plant species recorded in Britain. More significantly, perhaps, this list includes a large selection of rare and local species.

The rarity of species in Britain has been defined by the number of 10km x 10km squares from which they were recorded in the Atlas of British Flora (BSBI 1990). 'Nationally rare' species are defined as those occurring in 1-15 10x10 km squares (out of 3,500) and 'nationally scarce' species are defined as those occurring in 16-100 10x10 km squares. Those species that are particularly threatened are given special protection by The Wildlife and Countryside Act 1981 in its Schedule 8.

In terms of rare plants, Torbay has something of an 'embarrassment of riches' and perhaps with the exception of Braunton Burrows in North Devon, no other area in the county supports such a concentration of rare and local plants.

During the 1991 survey, ten nationally rare species, including two Schedule 8 species, were recorded, along with twenty-eight nationally scarce species. If old records are also taken into account, this staggering total is even higher.

The following sections list those nationally rare and scarce species and briefly discuss their distribution and ecology.

3.3.1.2 Nationally Rare Species

- | | |
|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Small Hare's Ear
<i>Bupleurum baldense</i> | Very rare. Confined in mainland Britain to Beachy Head in East Sussex and Torbay, where it occurs in open calcareous cliff top grassland. Recorded in the past on Walls Hill Downs, but the main population is on Berry Head - this representing the most extensive population in Britain. |
| Small Rest Harrow
<i>Ononis reclinata</i> | A tiny annual, restricted in Britain to a few localities on the carboniferous limestone of South Wales and the Devonian limestone of Torbay. Within Torbay, it occurs in open, rocky limestone grassland on south facing slopes. The main population is in the Berry Head - Sharkham Point area, but it has |

also been recorded from Daddyhole. A new site for this species was discovered during the 1991 survey.

Goldilocks Aster
Aster linosyris

Very rare and restricted to seven localities on coastal limestone cliffs in Torbay, North Somerset, Wales and Lancashire. Some of the colonies are very small and the Torbay Colony is the largest in the country, and the only one known to set seed regularly. This colony is situated on cliffs south of Berry Head, and although in places the plants are threatened by scrub invasion, the population would seem to be very healthy. A thriving population at a new site was discovered during the survey.

Nit-grass
Gastridium ventricosum

A very rare annual grass of Southern Britain, probably native in short grassland on chalk and limestone and occurring as a casual elsewhere. Recorded from open limestone grassland on Berry Head, this being the only Devon site for this species.

Little Robin
Geranium purpureum
subs. *purpureum*

Very rare, local and declining. This is a species of open rocky habitats and hedgebanks close to the sea on base rich soils. The 1991 survey identified several localities for this species within Torbay and it could be considered a 'Torbay speciality'. Particularly good populations were found around Daddyhole and Fishcombe Point.

White Rock-rose
Helianthemum apenninum

This is confined in Britain to carboniferous limestone around Brean Down in Somerset and Devonian limestone in Torbay. Within the Borough, it occurs very locally in dry, rocky limestone grassland on south facing slopes around Walls Hill and Berry Head. The hybrid between this species and common rock rose (*Helianthemum nummularium*) known as *Helianthemum sulphurum* occurs at Fishcombe Point.

Purple Gromwell
Lithospermum
purpureocaerulea

Very rare, restricted to a few localities in South Devon, the Mendips in Somerset and in Wales, where it grows on the margins of woods and in scrub. This species was rediscovered at Petit Tor where it was last recorded over 50 years ago.

Carrot Broomrape
Orobanche maritima

Like other broomrapes, this is a root parasite of other flowering plants. The scale-like leaves lack chlorophyll and they obtain all their nourishment from their host plant. This species is very rare and confined to the south coast of England, occurring in East Kent, Hampshire, Devon, Cornwall and the Channel Islands. It grows on rough maritime grassland where it usually parasitises on wild carrot. Several good colonies occur in Torbay - one, in the Walls Hill area, of particular note in that the host plant is rock samphire (*Crithmum maritimum*). A

small number of new sites were discovered for this species during the 1991 survey.

Early Meadow Grass
Poa infirma

Very rare and local. Until recently believed to be confined to the Lizard in Cornwall, the Isles of Scilly and the Channel Islands. First recorded in Devon in 1989 and several further records from the county have followed. An early flowering annual, this species was recorded on Berry Head where it occurs in short limestone grassland.

Honewort
Trinia glauca

Very rare and confined to the Devonian limestone of Torbay, and carboniferous limestone of Gloucestershire and Somerset, where it occurs in short open, rock limestone grassland. In Torbay it can be found between Berry Head and Sharkham Point, where it can be locally frequent in suitable habitat. A small number of new sites for this species were discovered during the survey.

3.3.1.3 Nationally Scarce Species

Maidenhair Fern
*Adiantum capillus-
veneris*

Very rare and confined as a native to damp calcareous sea cliffs in South West Britain. In Devon there are only two sites - one on the cliffs west of Ilfracombe and one in Ansteys Cove, Torquay. The latter site is vulnerable to damage and disturbance.

Lanceolate Spleenwort
Asplenium bilotii

An Atlantic species of South west Britain, where it occurs on rocks, walls and hedgebanks, usually near the sea. In Devon it is only found in any frequency on old walls on the western edge of Dartmoor and along some sections of the south coast. There is one record from Torbay.

Wild Cabbage
Brassica oleracea

Known from about 30 localities, mostly in the south-west where it is confined to steep maritime cliffs of chalk or limestone and often associated with seabird colonies. A 'Torbay speciality' with large colonies around Berry Head and Walls Hill, and scattered records elsewhere.

Dwarf Mouse-ear
Cerastium pumillum

A rare and local species of calcareous soils in southern England. It is a tiny annual of short open calcareous grassland, and although only recorded from single sites on Berry Head and Walls Hill, may be under-recorded. These are the only Devon records.

Sea kale
Crambe maritima

Scattered around the British coastline, but commonest on the south coast where it is typically a plant of undisturbed shingle beaches. Occasionally a cliff ledge plant, and recorded on cliffs around Watcombe in 1959, but no recent records.

- Sea Storksbill
Erodium Maritimum
Musk Storksbill
Erodium moschatum
- Two local species of short, open grassland close to the sea, particularly of south west and western coasts. *Erodium maritimum* was found to be scattered around Torbay in suitable habitats, while *Erodium moschatum*, although absent from much of the Borough, was locally frequent around Sharkham Point.
- White Ramping Fumitory
Fumaria capreolata
- An annual weed of waste ground, track sides and hedgebanks, with a markedly south-western distribution in Britain. This was found to be scattered around the Borough, and although nowhere common, was most frequent in disturbed habitats near the coast.
- Wall Bedstraw
Galium parisiense
- A small prostrate annual of open habitats, mostly in the south-east. This was recorded from a wall in Torquay in 1978, and was re-discovered at the same site in 1991.
- Round-leaved Crane's
Bill
Geranium rotundifolium
- A local plant of Southern Britain, most frequent in the South West where it occurs in dry, open, usually calcareous grassland. The species was found in a few scattered localities in the Borough - but nowhere common.
- Stinking Hellebore
Helleborus foetidus
- A rare plant of woods and scrub on calcareous soils, most abundant on the chalk of the North and South Downs, but also occurring on limestone of Southern Britain. On the 1991 survey, this was recorded from a few sites in the Brixham area - these representing the only sites within the county.
- Pale St Johns Wort
Hypericum montanum
- A very local and declining species of chalk and limestone areas in England and Wales. This was found to be scattered in the coastal strip, occurring along woodland margins and in scrubby grassland, where in some areas it is locally abundant.
- Tree Mallow
Lavatera arborea
- This is a coastal species of South-west Britain occurring on cliffs, rocks and stony waste ground. In Torbay it is locally abundant on limestone cliffs, often alongside *Brassica oleracea*.
- Rock Sea-lavender
Limonium binervosum
- A local 'species' largely confined to the south and west coast of Britain. In Torbay, there are numerous colonies, typically on north facing Permian breccia cliffs associated with rocky headlands. The 'species' has been the subject of recent research and is now believed to represent a series of closely related 'micro-species', most of which are probably apomictic. Thus, the true identity of the populations in Torbay is yet to be established and the area may support several different micro-species of very limited distribution in Britain.
- Hairy Bird's-foot
Trefoil
- Confined in Britain to coastal Hampshire, Dorset, Devon, Cornwall and the Isles of Scilly, it is an

- Lotus subbiflorus* annual of dry, open coastal grassland. Previously recorded from Sharkham Point but not recorded in 1991.
- White Horehound
Marrubium vulgare A rare and local coastal species of the south and west coasts. This has been recorded from the Walls Hill area but was not seen in 1991.
- Toothed Medick
Medicago polymorpha A local coastal species of open habitats close to the sea. Scattered records for Torbay but nowhere common.
- Bastard Balm
Melittis melissophyllum Very local, more or less confined to Devon, Cornwall and the New Forest, where it grows in woodland and hedgebanks. Three sites were recorded during the 1991 survey - all on the margin of scrubby woodland on north facing cliff slopes.
- Corky-fruited Water-dropwort
Oenathe pimpinelloides A local species confined to Devon, Dorset, Hampshire and South Somerset. It is locally abundant in some areas, for example around Exeter, but is rare in Torbay. Only two sites for this species were found, both in rough grassland.
- Spiked Star of Bethlehem
Ornithogalum pyrenaicum Very local and known as a native from several southern counties with a particular concentration on oolitic limestone around Bath. This was recorded from one coastal site within Torbay, in rough grassland on limestone. Although it is doubtful whether it is native at this site, it is interesting to note that the species was recorded there as long ago as 1936.
- Ivy Broomrape
Orobanche hederæ A local species with a coastal south western distribution. It is a parasite on ivy and was found to be widespread in Torbay, no doubt reflecting the abundance of its host species, particularly in secondary woodland along the coast.
- Bulbous Meadow-grass
Poa bulbosa A rare and local species of open, dry, coastal grassland largely in south-east England. In Torbay, recorded from open, trampled cliff top limestone grassland around Berry Head, Daddyhole and Walls Hill.
- Autumn squill
Scilla autumnalis Very local and virtually confined to dry maritime grassland in Devon, Cornwall and the Channel Islands. In Torbay it is very characteristic of trampled open cliff top limestone grassland and in some areas is locally abundant.
- Rock Stonecrop
Sedum forsteranum A local species of west and south west Britain, occurring in Devon, Somerset, Shropshire and Wales, where it grows on cliffs, rocks and scree slopes. In Torbay it is locally abundant on steep rocky slopes, particularly around Berry Head and Walls Hill.

<p>Whitebeam <i>Sorbus porrigentiformis</i> <i>Sorbus rupicolor</i></p>	<p>Two of about 17 apomictic species (microspecies) of Whitebeam recognised in Britain - all of which are local species of limestone areas in the North and West. <i>Sorbus rupicolor</i> is the most widespread of these, whereas <i>Sorbus porrigentiformis</i> is much more local and also endemic to Britain. Within Torbay, <i>Sorbus rupicolor</i> occurs around Churston Cove, Brixham and a few examples are found on limestone cliffs around Walls Hill. The population of <i>Sorbus porrigentiformis</i> is concentrated in the Walls Hill - Babbacombe area.</p>
<p>Clustered Clover <i>Trifolium glomeratum</i>/ Fenugreek <i>T. ornithopodioides</i>/ Suffocated Clover <i>T. suffocatum</i></p>	<p>Three local and declining annual clover species of open, dry, coastal grassland, all more or less confined to the south coast. Within Torbay, all three species are very rare and recorded occasionally from suitable coastal sites. Most recent records come from Berry Head.</p>
<p>Keeled-fruited Corn-salad <i>Valerianella carinata</i> Narrow-fruited Corn-salad <i>Valerianella dentata</i></p>	<p>Both species are small annual weeds of arable land, banks and rock outcrops on well drained, usually calcareous soils. <i>Valerianella carinata</i> was found to be widespread and often abundant in Torbay. It was always the most abundant species of corn salad and may have been under-recorded in the past. <i>Valerianella dentata</i> is a much rarer and declining species, throughout the country. This was recorded from a few widely scattered localities, always on trampled, rocky, limestone grassland.</p>
<p>Twiggy Mullein <i>Verbascum virgatum</i></p>	<p>Very rare, confined as a native to Devon, Cornwall and the Isles of Scilly, occurring on waste ground and rough grassland. There are widely scattered records in Torbay, but it is never found far from the sea.</p>

3.3.1.4 Other Species

In addition to the species listed in the previous sections, many species that are rare or local in the County occur in Torbay.

Due to the limited distribution of calcareous grassland in Devon, this particularly applies to calcareous grassland species. Several of these are primarily south eastern species on the extreme edge of their British range in Torbay, for example, horseshoe vetch, squinancywort, stemless thistle (*Cirsium acaule*) and both pyramidal and bee orchids.

It is also interesting to consider the Torbay flora in an international context. The elements of the British flora regarded as particularly important by European botanists are firstly, Atlantic species, which are often better represented in Britain than elsewhere in Europe, and include species such as gorse and bluebell, and secondly, maritime species associated with the outstanding range of coastal habitats in Britain. Both these elements are particularly well represented in Torbay.

3.3.2 BRYOPHYTES AND LICHENS

Neither of the above groups were covered during the 1991 survey, due to the authors lack of specialist knowledge, but available information suggests that both floras are rich.

The bryophyte flora is known to be both diverse, and notable for the presence of rare species. As with vascular plants, the rarer species are associated with areas of calcareous grassland. These include the nationally rare *Cheilothela chloropus* which is known from only five sites in Britain - three of these occurring in Torbay.

The area's low pollution levels and variety of habitats have also allowed a rich and diverse lichen flora to develop. Studies of lichens at Berry Head and Hopes Nose - Walls Hill indicate that these communities are of outstanding importance.

3.3.3 MAMMALS

3.3.3.1 General

Mammals are well represented, within the Borough and the often extensive areas of woodland, scrub and rough grassland provide ideal sites for many of our native species. Foxes are widespread as in many urban areas, and Torbay is very fortunate in supporting such a large population of the typically shy, nocturnal badger. Since 1960 a number of adverse factors affected the British badger population, and in some areas numbers have decreased significantly due to an increase in illegal digging and also culling linked with the bovine tuberculosis problem. In Torbay, however, numbers would appear to be high and in some areas badgers have adapted very well to an urban lifestyle. Several reports of night-time visits to gardens were received, with badgers, in some cases, being very tame and approachable. Badgers are given protection under The Badger Act 1973 (as amended by the Wildlife and Countryside Act 1981), and The Badger Act 1991, which extends protection to their setts.

Both stoat and weasel also occur in suitable areas, and both hedgehog and grey squirrel are familiar visitors to many parks and gardens. Along with the more common species of small mammal, dormouse, harvest mouse and water shrew were also recorded.

The bay itself is also regularly visited by grey seals and various cetaceans. Indeed, on one memorable occasion, the author was fortunate enough to discover a school of bottlenosed dolphins swimming in shallow water just off Goodrington Sands.

3.3.3.2 Bats

Britain has 14 species of breeding bat, with most of these restricted to the warm south coast. Since the 1940's, all these species have declined markedly, firstly as a result of disturbance and loss of their roosting and hibernating sites, and second, as a result of destruction of their insect rich feeding areas. The bats themselves and their roosts are now protected by the Wildlife and Countryside Act 1981, but loss of suitable feeding areas remains a threat to the bat population.

Torbay is known, not only to support large numbers of bats, but also nationally important populations of some species. Pipistrelle and brown long-eared bats are both widespread, with noctule, whiskered and Natterers bats also occurring. The two most significant species, however, are greater and lesser horseshoe bats. A 1988 survey indicated a national population of only 3000 greater horseshoe bats, those very much concentrated into particular localities of South West England and South Wales. Lesser horseshoes are more widespread (numbering 8000 in 1988) but also declining significantly both in Britain and elsewhere in northern Europe. Both these nationally rare species are known to occur within caves around Berry Head where 63 greater and 14 lesser were recorded in 1991. Of particular importance is the use of some caves as breeding sites for greater horseshoes.

Clearly bat conservation should have a high priority in Torbay. In the wildlife survey, it was impossible to survey and document all bat roosts and hibernation sites within the Borough in such short time. However, recognition of insect-rich feeding sites for bats was considered a priority in identifying sites of wildlife interest.

3.3.4 BIRDS

Torbay has a great deal of bird interest. There are breeding seabirds, a nationally important population of the rare and declining circl bunting and a good selection of wintering species, notably in the bay itself.

3.3.4.1 Seabirds

Torbay's predominantly rocky coast with rugged cliffs and a few off-shore islands affords nest sites for a variety of seabirds. The most notable concentrations are around Berry Head and Hopes Nose with small numbers occurring elsewhere. Table 2 gives figures for breeding seabirds at various localities in Torbay, but it must be stressed that due to the inaccessibility of several sections of cliff, rather distant views of offshore island colonies and the inherent problems in estimating sea bird numbers, these figures must be treated as very approximate.

The following species are of significance:

Cormorant - The Devon population represents 3.5% of the British population (Sitters, 1988). The South Coast population is increasing and the Torbay population may become increasingly significant in National terms. The species is afforded full protection under the Wildlife and Countryside Act 1981.

Shag - The Devon population of breeding Shags is considered to be a significant percentage of the total population in England and Wales, the majority of these birds restricted to certain sections of the South Coast. It is afforded full protection under the Wildlife and Countryside Act 1981.

Kittiwake - In Devon, restricted to a handful of sites, prominently around Torbay, but this population represents 4% of the breeding population of England and Wales. It is afforded full protection under the Wildlife and Countryside Act 1981 and is a candidate Red Data Book species.

Lesser Black-backed Gull - A rare breeding species in Devon, with a large colony on Lundy, but only about 20 pairs on the mainland coast.

TABLE 2
APPROXIMATE NUMBERS OF BREEDING SEABIRDS
AT VARIOUS LOCALITIES IN TORBAY 1991

APPROXIMATE BREEDING NUMBERS

1991

Figures relate to breeding pairs
unless otherwise stated

SPECIES	BERRY HEAD AREA	HOPES NOSE AREA	OTHER LOCALITIES	TOTAL	DEVON POPULATION (1987)	APPROXIMATE % DEVON POPULATION IN TORBAY
Cormorant	-	5	15	20	300	6.5%
Shag	15	10	10	35	200	18.0%
Fulmar	35	4	50	89	900	10.0%
Herring Gull	c 200	c 500	?	700-800	?	?
Greater Black-backed Gull	2	10	8	20	160	12.5%
Lesser Black-backed Gull	-	1012	1	2013	200	1.0%
Kittiwake	350	c 500	-	850		53.0%
Guillemot	800 Birds	50 Birds	-	850 Birds	2200 prs	19.0%
Razorbill	1	4	-	5	850	0.5%

Guillemot - The Berry Head colony represents the only stable colony on the South coast of England and due to the accessibility, small size and close viewing conditions represents a very important population for ecological monitoring. This species is afforded full protection under the Wildlife and Countryside Act 1981 and has full status as a Red Data Book species.

Razorbill - In Devon the largest numbers breed on Lundy, with a sizable population on the north coast and a few pairs in Torbay. It is afforded full protection under the wildlife and Countryside Act 1981 and has full status as a Red Data Book species.

It is important to remember that conservation of those birds relies not only on protection of the breeding sites, but also of the marine environment in which they feed. Pollution from oil and untreated sewage, the use of gill-nets and increased disturbance caused by water sports throughout the year are all affecting both breeding seabirds and wintering grebes, divers and seaduck in Torbay.

3.3.4.2 Peregrine

The peregrine is a breeding resident which is found in Britain in internationally important numbers. The fortunes of the peregrine have fluctuated in the last 50 years, with a major decline in the population occurring in 1957-1963 through the use of persistent organochlorine pesticides in agriculture. Following controls over pesticide use and a campaign of protection and education, numbers have risen to over 900 pairs - which is probably in excess of its pre-war level. This represents about 25-30% of the breeding population in Western Europe. Threats from pesticides are now mostly over, but the problems of illegal killing and theft of eggs and chicks still continue.

In Devon, most peregrine eyries are on sea cliffs. Two breeding pairs were recorded in Torbay, both occurring in such habitat.

The species is afforded full protection under Schedule 1 (i) of the Wildlife and Countryside Act 1981 and has full status as a Red Data Book species.

3.3.4.3 Cirl Bunting

a) Distribution and Status

The cirl bunting is a rare and declining species of South West England that has suffered a major decline in the last 40 years and is now more or less confined to South Devon.

In 1990, a breeding survey organised by the Royal Society for the Protection of Birds, indicated that the total population in Britain could be as low as 120 pairs, all but two of these in South Devon (RSPB pers. comm). In 1991, due to improved survey methods and more comprehensive coverage, survey results indicate a higher, perhaps more realistic, estimate of numbers, but although there is an indication of a population increase in certain 'core areas', the population as a whole is continuing to decline, and the range contract.

Provisional figures for 1991 give a breeding population of something like 220 pairs in Britain, 210 of which occur in South Devon between Exeter and Plymouth. Of these, approximately 28 pairs were recorded in Torbay - this representing 13% of the national population.

The ciril bunting is essentially a Mediterranean species on the edge of its range in Britain, but although much more abundant in Europe, declines in both population and range have been noted.

b) Ecology

The ciril bunting is a bird of typical Devon farmland with breeding territories often centred on sheltered hillsides with scrub and bushes. A diversity of land use to include arable, pasture, horticulture and hedgerows would seem to be important within a territory and the availability of cereal stubble, especially when containing arable weeds is very important in the winter. During the winter, birds move rather short distances to gather into winter feeding flocks.

c) Conservation

The species has been the subject of intensive research by the RSPB since 1988, with particular attention being paid to breeding ecology and winter survival. It is hoped that the research will identify what changes in land management are required to help the species.

Provisional analysis of results show that a mixed farming system involving sympathetic hedgerow and scrub management, a reduction in the use of chemicals and the provision of some winter stubble would benefit the species. The results are expected to be published in 1992.

Although a few pairs enjoy protection within coastal SSSIs, the majority receive little habitat protection and the RSPB and EN are currently investigating the possibility of notifying SSSIs to protect breeding ciril buntings. However, changes of management may be of more value than site protection in many cases. To this end, the RSPB is also investigating further ways to change site management by liaison with farmers and landowners and the use of MAFF 'Set-Aside', County Council 'Environment Land Management' and Countryside Commission 'Countryside Stewardship' schemes.

d) Ciril buntings in Torbay

With something like 13% of the British population within the Borough, activities within Torbay are likely to have a profound affect on the future of this threatened species in Britain. Proposed developments and road building, particularly within areas of core populations will continue to fragment and destroy suitable habitat and inevitably lead to a further reduction in the population. Torbay Borough Council have a considerable responsibility to ensure that the Torbay population not only survives, but is allowed to flourish. With site protection and sympathetic management, the Council can ensure that this is achieved, and that the future of the ciril bunting as a British breeding bird is assured.

e) Cirl buntings and wildlife site designation

Clearly, the presence of cirl buntings has been an important factor in identifying wildlife sites. It should be noted that although wildlife sites have been selected using existing information on the species up to 1991, future changes in farming and land management may result in sites becoming more, or less important for cirl buntings. Some areas not identified by the wildlife survey may become significant cirl bunting sites in the future.

f) Legal status

The cirl bunting is listed on Part 1, Schedule 1 of the Wildlife and Countryside Acts 1981 and 1985 and is protected by special penalties at all times. It is against the law to intentionally disturb birds during the nesting season. The cirl bunting has full status as a Red Data Book species.

3.3.4.4 Wintering birds

The sea off Torquay, Paignton and Brixham is mainly shallow and sandy and sheltered from prevailing south-westerly winds. As a result, the bay is the best in Devon for a variety of wintering grebes, divers and wildfowl.

Great crested grebes reach a flock of 30 or so, and this represents the largest regular winter population in the county. Red necked and slavianian grebe also regularly winter and Torbay is the only regular wintering site for black necked grebe in Devon. Small numbers of great northern divers winter, with both red throated and black throated divers occurring sporadically, and small numbers of wintering seaduck include common scoter, eider, red breasted merganser and long tailed duck.

In addition, Clennon Ponds, although small, represents a very local habitat in the county and in winter supports a good selection of freshwater duck. This site also provides breeding habitat for some localised breeders in the County, such as little grebe and tufted duck.

As the winter climate is so mild, the Torbay area also plays host to small numbers of wintering passerines which normally move further south and are uncommon in Britain at this time of year. These include good numbers of chiffchaff and blackcap, with small numbers of black redstart and firecrest.

3.3.4.5 Other Species

In addition to those species which regularly breed or winter, Torbay is also of great interest for the number of rare and unusual species which pass through on migration.

Berry Head and, particularly, Hopes Nose are prime sites in the region for observing seabird passage in spring and autumn, and a large number of different species are recorded each year. Coastal sites also offer excellent opportunities for watching passage migrants, and rare vagrants regularly occur. These include visitors from the south like the hoopoe and bee-eater, northern species such as the magnificent Greenland gyrfalcon which spent 10 days on Berry Head in Spring 1986, and even the occasional American wanderer such as the ring billed gull, which has spent the last 5 winters on Preston beach.

3.3.5 REPTILES AND AMPHIBIANS

All the commoner British reptiles occur in Torbay - adder, grass snake, slow worm and common lizard. Dry sunny railway embankments possibly represent the best habitats for these species, but suitably warm, sheltered cliff slopes are also important. Private gardens may play a significant role, particularly for slow worm and grass snake.

Few suitable amphibian breeding sites were discovered during the 1991 survey, and it is likely that garden ponds represent the most significant amphibian sites in Torbay. The only two garden ponds that were visited were found to support common frog, common toad and both smooth and palmate newts and those species may well occur widely in such habitats. No records were received of the local great crested newt, but this may occur in one or two places. This species is given special protection under Schedule 5 of The Wildlife and Countryside Act 1981.

3.3.6 INVERTEBRATES

3.3.6.1 General

Invertebrate recording is a rather specialised skill which tends to involve few individuals in any one area. Consequently, both groups covered and quantity/quality of information varies greatly between sites, depending largely on chance factors, such as who happens to have visited the site and for how long. Existing information on the invertebrate fauna of Torbay was found to be rather poor, but with the range of habitats present, particularly in the coastal strip, the invertebrate interest would be expected to be outstanding, and this definitely merits further study.

During the wildlife survey, lack of time precluded detailed studies being carried out on invertebrates. Some groups and species were noted during the survey, but these reflect the conspicuousness of the species and the rather limited knowledge of the author, rather than the result of a systematic study.

Some of the more notable species are listed below.

3.3.6.2 Butterflies and Moths (Lepidoptera)

Butterflies are well represented and are the most widely reported group in the Borough. Some 34 species have been recorded in Torbay in the last 5 years, although the status of some of these needs confirmation. Of particular note are the following:

Adonis blue (*Lysandra bellargus*) Confined to extreme southern England where it is restricted to calcareous grassland on steep, usually south facing slopes. The larval food plant is horseshoe vetch. Recent sightings at Berry Head would seem to indicate the presence of a small isolated colony, presumably on some of the more inaccessible cliff ledges, but the status of this species needs confirmation.

Small blue (*Cupido minimus*) Frequents old quarries, cliff slopes, and downland on chalk or limestone grassland where the larvae feed on kidney vetch. Only a handful of sites in Devon, with Torbay being something of a stronghold for the species. The species is now the subject of specific

habitat management by TBC to conserve and hopefully increase the population.

Marbled white (*Melanargia galathea*) A local species in Britain, very much concentrated in the South West, where it prefers lightly cropped or unmanaged grassland. The larvae feed on a series of native grasses of unimproved pasture. This species was found to be widely distributed in Torbay, wherever suitable habitat is present. At some sites, large populations were present.

Brown hairstreak (*Thecla betulae*) A rare and declining species of woodland and hedgerows where the larvae feed on blackthorn. Recorded from a few sites in Torbay, but possibly overlooked.

Other local species of butterfly recorded from Torbay in recent years include brown argus, silver washed fritillary and small pearl bordered fritillary. The moths of Torbay are not so well studied, but several species of interest are known to occur.

Jersey tiger (*Euplagia quadripunctaria*) A spectacular day flying species of suburban gardens, wasteground and open countryside. The larvae feed on a variety of plants including nettle and hemp agrimony (*Eupatorium cannabinum*). This is a very rare species in Britain, confined to the south Devon coast between Exeter and Brixham, but was found to be very abundant in Torbay, and must be considered as something of a local speciality. Adults were regularly seen during the day in mid summer more or less throughout the Borough, often feeding on the flowers of buddleia and red valerian.

Scarlet tiger (*Callimorpha dominula*) Another attractive day flying species, breeding in wet meadows and coastal undercliff, where the larvae feed on a variety of herbs. It is a very local species confined to South West England and was recorded in several sites during the wildlife survey.

Other records include the beautiful gothic (*Leucochleana oditis*) a Red Data Book species recorded from Walls Hill, and studies of 'Micro moths', particularly at Berry Head, have revealed the presence of several extreme rarities, including one species new to science.

3.3.6.3 Other Species

a) Grasshoppers and Crickets (Orthoptera)

This group was widely recorded in Torbay, with two notable species present:

Great green bush cricket (*Tettigonia viridissima*) The largest British species and continued to the South Coast of England, where it is most common in the South West. This was found to be very common in Torbay and present in almost every hedgerow and stand of rank vegetation and scrub, particularly on the coast.

Grey bush cricket (*Platycleis denticulata*) Very rare and local in Britain. The preferred habitat is hard or soft rock cliffs in dry places with rough herbage, usually on south facing slopes, and never more than a few hundred yards away from the sea. This was recorded from Walls Hill during the 1991 survey, and there are old records from Berry Head.

b) Dragonflies and damselflies (Odonata)

Devon is a very good county for this group of insects, but due to a lack of suitable wetland breeding sites, Torbay does not support notable concentrations or species of Odonata. Clennon Ponds is currently the best site and may in time develop further interest.

c) Other invertebrates

Other national rarities are known to occur in Torbay. These include some species unknown outside the Borough, such as the Firebug (*Pyrrhocoris apterus*) which is only known from Ore Stone Rock, and the bristletail (*Trigoniophthalmus alternatus*) only recorded from Berry Head. Further study would undoubtedly reveal the presence of more unusual species.

3.4 SITES OF WILDLIFE INTEREST IN TORBAY

3.4.1 GENERAL

The natural environment within Torbay is notable for:

- a) the presence of a series of outstanding wildlife sites that are of sufficient scientific interest to merit designation as County Wildlife Sites and Sites of Special Scientific Interest
- b) an impressive selection of other wildlife sites scattered throughout the Borough creating an overall wildlife resource of outstanding value.

The most important sites have been recognised so that priorities for nature conservation can be identified. These sites represent the minimum area within Torbay that should be protected from development for nature conservation reasons and the minimum area in which wildlife interest should be maintained and enhanced. These sites, which are all SSSIs or CWSs are described in the following section.

It is important to stress, however, that the large number of other sites scattered throughout the Borough are just as important in maintaining the high quality of the urban environment and contribute enormously to the overall wildlife resource of Torbay. These should also be recognised when developing strategies for nature conservation.

3.4.2 THE MAJOR WILDLIFE SITES IN TORBAY

The most important wildlife sites are listed below and their wildlife interest and conservation needs are discussed. A total of 17 sites are included, but some of these are contiguous and have been separated purely for logistic reasons.

3.4.2.1 Berry Head - Sharkham Point SSSI

Description

This site is of national importance for its extensive area of limestone grassland containing many nationally rare plant species. In addition, the sea cliffs support breeding seabirds including the largest guillemot colony on the

South Coast of England and there are a series of caves inhabited by greater and lesser horseshoe bats.

Berry Head is a large headland of Devonian limestone. Reaching a height of 195m, it is flat topped with a series of cliffs, steep slopes and ledges reaching down to the sea. These cliffs and slopes extend southwards around St Mary's Bay to Sharkham Point. Areas of open limestone grassland and broken cliff support rich and diverse plant communities including some unknown outside Torbay. National rarities in this grassland include Small hares-ear, small rest-harrow, honewort, white rock-rose, goldilocks aster and carrot broomrape. Alongside these, many other species of restricted distribution in Britain occur - Portland spurge, autumn squill, wild cabbage and rock sea-lavender and species rare in Devon - bee orchid and pyramidal orchid. The site also supports extensive areas of dense scrub which has developed at the expense of limestone grassland, and in the more sheltered localities, ash-sycamore woodland has developed. A small area on Berry Head supports limestone heath with bell heather and western gorse growing alongside calcareous grassland species.

The cliffs support the only stable colony of guillemots on the South Coast, alongside kittiwake, fulmar, shag and small numbers of razorbill. A wide variety of other birds are present including the nationally rare circl bunting.

A series of flooded marine caves with their range of salinity and light conditions have an interesting and rare marine fauna. Some are inhabited by greater and lesser horseshoe bats and are rated as nationally important sites for these rare and declining species.

The invertebrate fauna needs further study, but due to the exceptional range of habitats present is likely to be of outstanding interest. Several uncommon butterflies are known to occur on the site, including both small and adonis blues, and other species of note include small pearl bordered fritillary and marbled white.

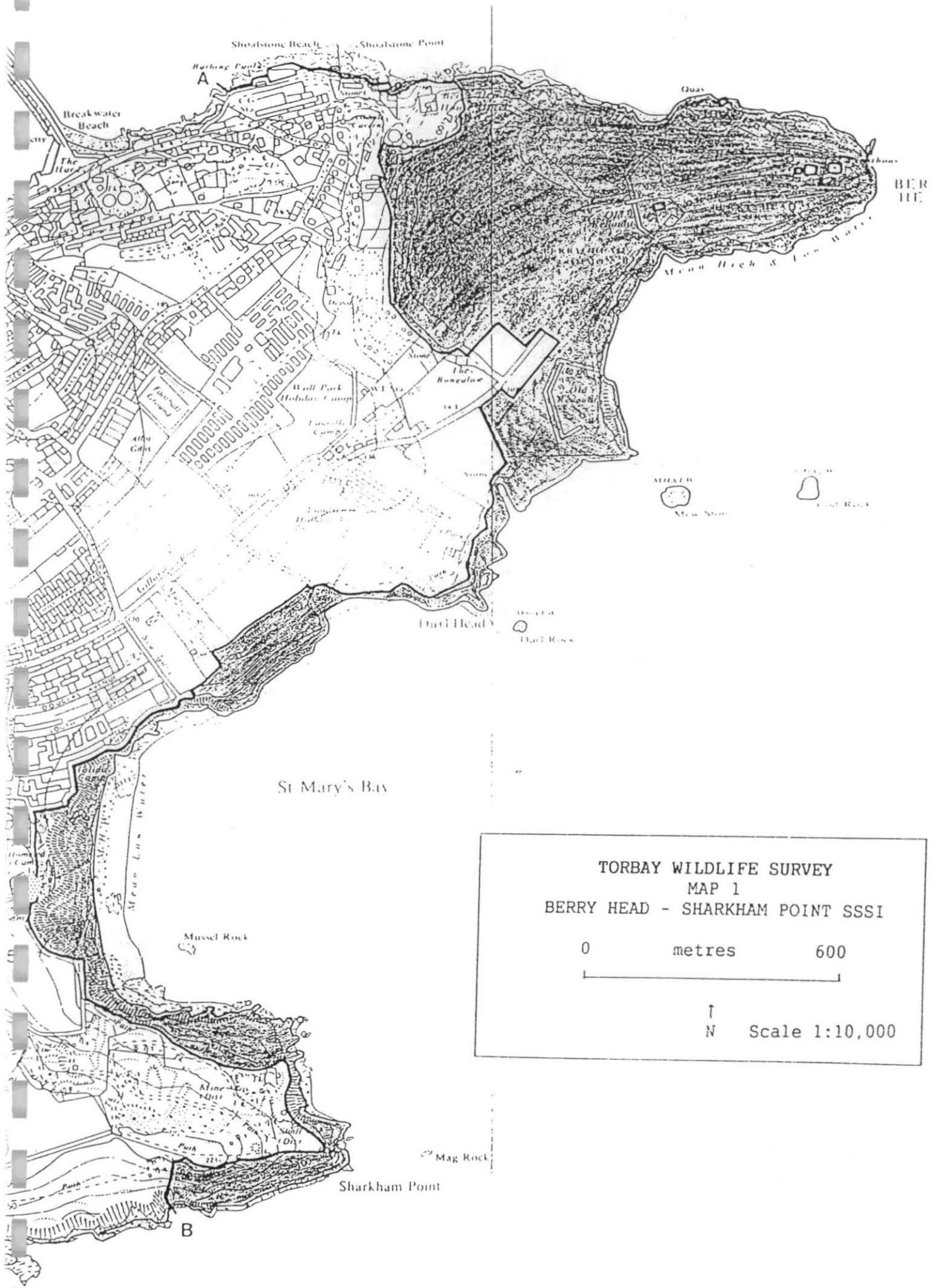
There is open public access throughout the site and the area has a major educational and recreational role in Torbay. Berry Head Country Park represents one of the major 'tourist attractions' in the Borough.

Conservation

The prime management objective on this site is the maintenance of open limestone grassland and the control of invasive scrub to prevent further loss of this nationally important habitat. Continued clearance of gorse scrub and re-creation of limestone heath on Berry Head is also recommended.

In addition, a considerable amount of survey and monitoring work is strongly recommended including detailed monitoring of all nationally rare plant species and notable invertebrate populations with appropriate site management where necessary, and continued study and monitoring of the seabird population.

These management objectives are to be recognised in a new management plan for the area currently being drawn up by TBC's countryside staff, and subject to approval by EN.



3.4.2.2 Sharkham Point

Description

This site extends along the South Coast of Sharkham Point from the boundary of Berry Head - Sharkham Point SSSI to the Borough boundary. The site represents a continuation of the coastal cliffs, steep slopes and ledges of the SSSI and also includes a series of grazed, cliff-top fields with calcareous grassland, and a complex of rough grassland and scrub on Sharkham Point.

The cliff top fields support a short, heavily grazed sward with stands of tall herbs and scrub on the steeper slopes. Below these, the steep cliff slopes are clothed in dense scrub with some areas of herb-rich grassland. The nationally rare honewort and small rest harrow were discovered in a small area of limestone grassland during the 1991 survey and several other notable .pa species were found here - musk sea-storkbill, autumn squill, rock stoncrop and bulbous meadow grass.

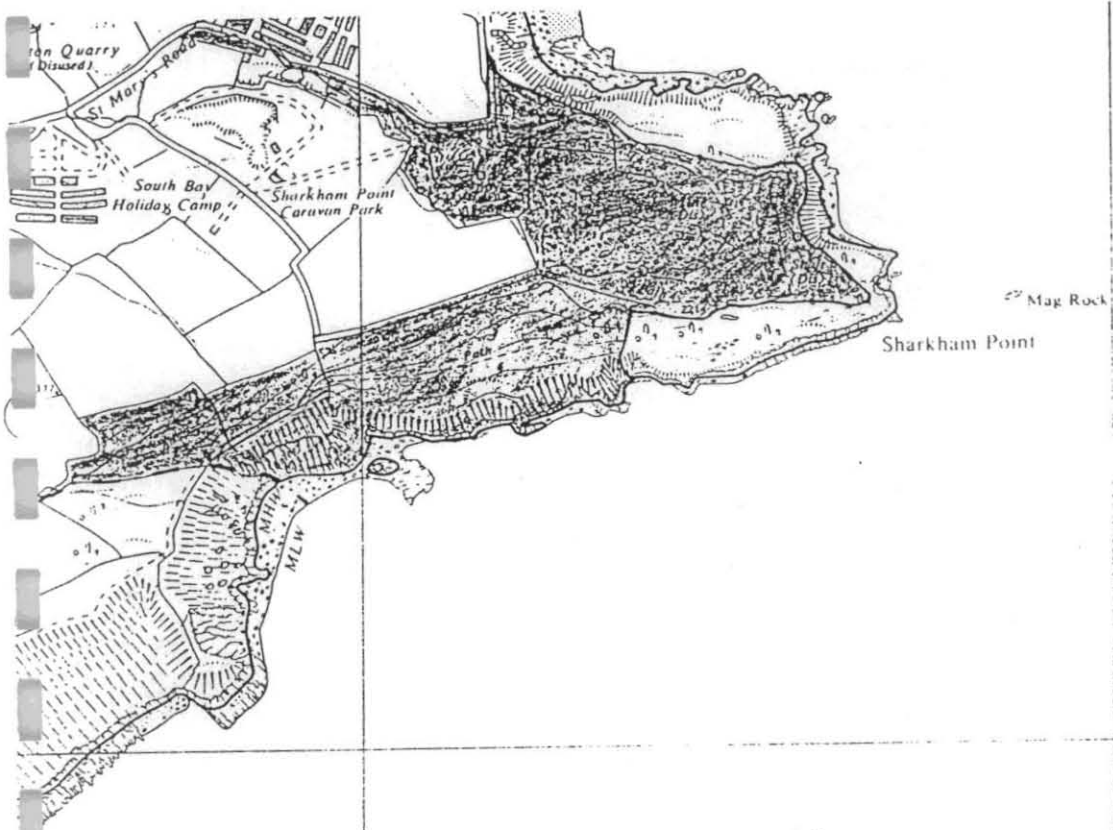
The areas of scrub provide cover for mammals, including badgers, and breeding birds such as linnet, whitethroat, stonechat and, in the past, circl bunting. Small numbers of seabirds breed on the cliffs and peregrines occur in this area.

Sharkham Point itself is owned and managed by TBC and there is open public access over this area. The cliff top fields to the west are private, but these can be viewed from the coastal footpath which runs beside them.

Conservation

Control of scrub invasion and the maintenance of open areas of grassland is the major priority, so that the current diversity of habitats and species is maintained. In addition, overgrazing of the cliff-top fields would appear to be a problem, and it is hoped that an agreement can be reached with the owner to ensure more sympathetic management.

Monitoring of rare species is strongly recommended, with site specific management when required, particularly for national rarities such as small rest harrow and honewort.



Crabrock Point

Cod Rocks

TORBAY WILDLIFE SURVEY
MAP 2
SHARKHAM POINT

0 metres 600

↑
N Scale 1:10,000

3.4.2.3 The Grove

Description

One of the largest areas of woodland in Torbay and occupying one of the few ancient woodland sites, this is an outstanding wildlife site. The woodland occupies both sides of a narrow limestone valley running down to the sea, where it grades into grassland and scrub around Churston Cove.

Although large areas have been replanted with conifers and non-native broadleaves, the woodland retains much of its ancient character. Ash, oak, sycamore and sweet chestnut are dominant, over a well developed and species-rich shrub layer and a very rich ground flora. Here, colourful carpets of bluebell, early purple orchid and wood spurge occur alongside less common species such as stinking hellebore, goldilocks and spurge laurel. Grassy clearings and steep rocky limestone slopes add to the habitat diversity within the wood and in many areas, the woodland margin grades into a mosaic of scrub and grassland providing additional wildlife habitats.

Mammals here include badger and fox, and breeding birds include buzzard, sparrowhawk, tawny owl and both great spotted and green woodpeckers. The invertebrates have been poorly studied, but important invertebrate habitats would appear to be present.

There is open public access throughout this site.

Conservation

Long term woodland management should seek to replace conifers with native trees, thin and control invasive sycamore where appropriate and maintain and enhance the system of open paths and glades. Control of scrub invasion into grassland areas is very important. These management objectives are to be recognised in a new management plan for the area, currently being drawn up by TBC's Arboricultural Officer.

It is suggested that the site is considered by EN as a candidate for SSSI selection, particularly in association with the coastal habitats around Churston Cove. In addition, the site could be considered for LNR designation.

TORBAY WILDLIFE SURVEY
MAP 3
THE GROVE

0 metres 600

↑ N Scale 1:10,000



3.4.2.4 Brixham - Broadsands Coast

Description

An attractive, unspoilt section of coastline extending some 3 km between Brixham and Broadsands, of outstanding wildlife interest. Much of the coastline is clothed in sycamore-ash woodland with areas of dense calcicolous scrub, but there are areas of limestone and maritime grassland of outstanding botanical interest notably around Fishcombe Point and the series of quarries to the west.

Ash - Sycamore woodland dominates the slopes west of Fishcombe Point which although of recent origin, support an excellent selection of species, including early purple orchid, wood spurge, twayblade (*Listera ovata*) and ivy broomrape. A series of sheltered disused quarries below these wooded cliff slopes support species-rich maritime/limestone grassland including a large population of the nationally rare little robin. The limestone headland of Fishcombe Point supports a mosaic of open rocky grassland and stands of scrub. Local species such as autumn squill, autumn ladies tresses (*Spiranthes spiralis*) and henbane (*Hyoscyamus niger*) occur alongside abundant Portland spurge, with bastard balm, ivy broomrape and pale St John's wort along scrubby margins.

Beyond the shingle beach of Elberry Cove, Churston Point has further areas of coastal grassland, and at the eastern end of the site, the Battery Grounds support coastal grassland and scrub, in addition to more formally managed parkland with planted trees.

With such habitat diversity, the area is outstanding for wildlife. Badger and fox are present in the woodland along with breeding buzzard, raven and a variety of passerines. Small numbers of seabirds nest on the cliffs - including fulmar, cormorant and lesser black backed gull. The invertebrates need further study, but with such habitat diversity are likely to be of major importance.

The site is owned and managed by TBC and there is open public access throughout.

Conservation

The major management priority is control of invasive scrub to prevent further loss of nationally important grassland communities. Analysis of aerial photographs has indicated that scrub invasion around Fishcombe Point/Churston Cove has been particularly significant in recent years and priority should be given to this area.

Long term woodland management should seek to thin and control sycamore where necessary and maintain and enhance the system of open rides and glades.

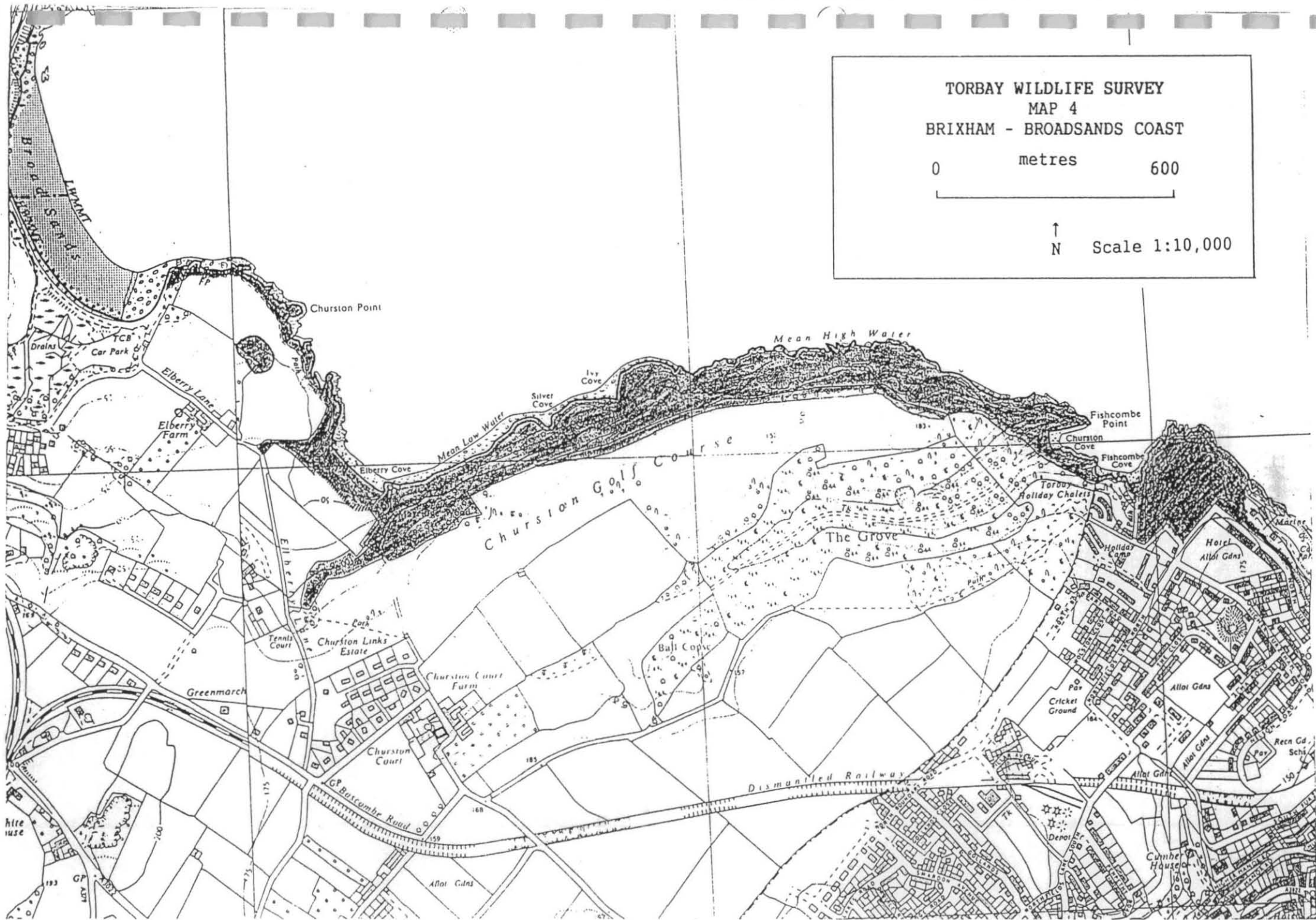
These management objectives are to be recognised in a new management plan for the area currently being drawn up by TBC's Arboricultural Officer.

It is suggested that the Churston Cove to Elberry Cove section of this site is considered by EN as a candidate for SSSI selection, particularly in association with the Grove, which adjoins it.

TORBAY WILDLIFE SURVEY
MAP 4
BRIXHAM - BROADSANDS COAST

0 metres 600

↑
N Scale 1:10,000



3.4.2.5 Disused Railway Line, Churston

Description

A 2km section of disused railway line running across mixed farmland between Churston and Brixham, this site supports a mosaic of species-rich grassland, stands of tall herbs, scrub and developing woodland and constitutes an excellent area of wildlife habitat.

Some fine areas of calcareous grassland exist supporting pyramidal orchid and pale flax and often abundant marjoram, while rocky slopes and cuttings support local species such as pale St John's wort and rock stonecrop. However, much of the area is covered by dense scrub and tall herbs providing a safe refuge for many species. A good population of badgers is present and birds noted include the local lesser whitethroat, and ciril bunting. Much of the site is very sheltered and some of the dry sunny banks may be of great value for invertebrates. Large numbers of butterflies occur here, including marbled whites, and other invertebrates of note include both scarlet and Jersey tiger moths and great green bush cricket.

In addition, the site has much value as a wildlife corridor and provides important wildlife habitat in an intensively farmed area.

The railway is on private land and there is no public access.

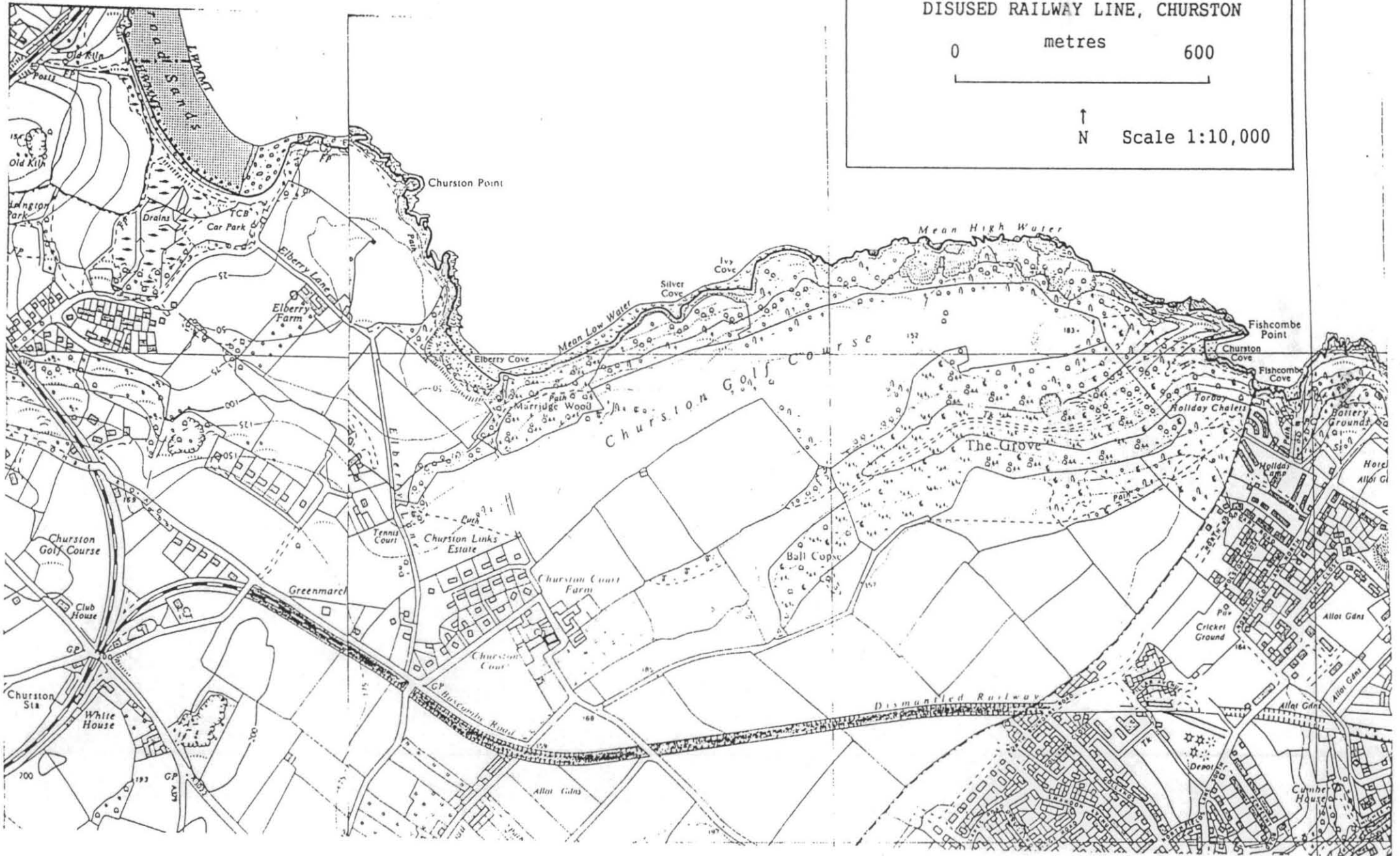
Conservation

It is important that areas of open grassland are maintained, and control of invasive scrub is, therefore, the major management priority. As such management is unlikely to be carried out whilst the area remains disused, the possible designation of the railway line as a public right of way, although causing some disturbance, is likely to be beneficial to the long term wildlife interest in necessitating regular scrub clearance and the maintenance of a clear access route. Some areas of dense cover should be allowed to remain. If such a designation fails to occur, it is hoped that TBC will be successful in establishing a management agreement with the land owner to secure the sympathetic management of the site.

TORBAY WILDLIFE SURVEY
MAP 5
DISUSED RAILWAY LINE, CHURSTON

0 metres 600

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N Scale 1:10,000



3.4.2.6 Galampton Warborough Common and Tor Rocks

Description

Galampton Warborough Common is an area of common land used extensively by the public for recreation. Due to its rather urban situation it is an area of great aesthetic and landscape value within a local context.

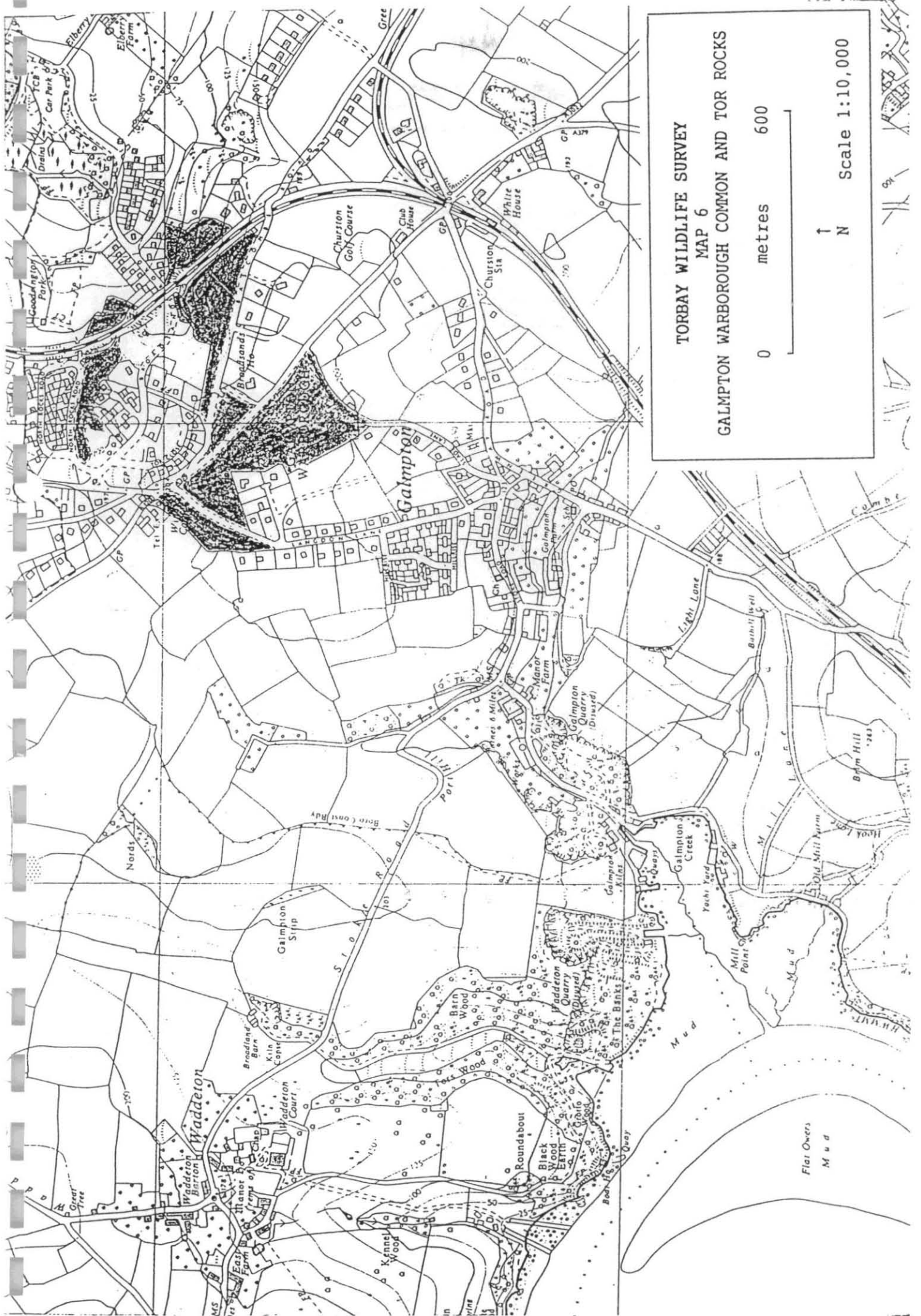
The majority of the common is open grassland, which is predominantly calcareous in nature and although improved in parts, largely retains an attractive herb-rich sward. This includes pyramidal orchid, pale flax, salad burnet, dropwort and burnet saxifrage. Good numbers of the more common butterflies occur here.

There are also some marginal areas of ash - sycamore woodland and calcicolous scrub - this habitat extending north along the Torbay and Dartmouth Railway to Tor Rocks. Although small, these areas of rocky limestone woodland support a rich flora including several notable species such as stinking hellebore, ivy broomrape and pale St John's wort, and provide good cover for birds, and both badger and fox.

There is open public access on the common, and a series of public footpaths through the woodland areas.

Conservation

The major management priority is the maintenance of herb-rich grassland on the common. A continuation of traditional grassland management should be encouraged, preferably involving a late summer hay cut. Management of woodland should involve selective thinning and the control of scrub invasion on the woodland margins.



TORBAY WILDLIFE SURVEY
 MAP 6
 GALMPTON WARBOROUGH COMMON AND TOR ROCKS

0 metres 600

↑ N Scale 1:10,000

3.4.2.7 Torbay and Dartmouth Railway Line

Description

This site comprises a 5 km section of railway line between Paignton and the Borough boundary south of Galmpton, used by the steam driven locomotives of the Torbay and Dartmouth Railway.

A series of embankments support a mosaic of grassland, stands of tall herbs, scrub and young ash - sycamore woodland of outstanding wildlife interest. Restriction of public access has provided many birds and mammals with undisturbed areas in which to breed, feed and shelter. Warm, dry, sunny embankments also provide ideal habitats for reptiles and many invertebrates. In addition, some sections of the railway line are of particular interest in supporting rare habitats and species. Limestone cuttings north of Churston Station and on the north side of Broadsands support superb species rich limestone grassland with species such as pyramidal orchid, pale toad flax (*Linaria repens*), pale St John's wort and vipers bugloss (*Echium vulgare*). Also the section behind Goodrington Beach supports communities similar to those of stable sand dunes, and represents the only area of this habitat within the Borough. Here local species such as fragrant evening primrose (*Oenothera cambrica*), white ramping fumitory and twiggy mullein occur.

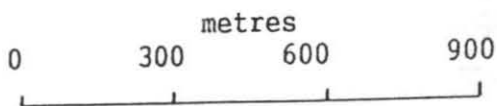
The railway line is also of very significant value as a wildlife corridor, and is particularly important in linking several of the most important wildlife sites within the Borough.

Conservation

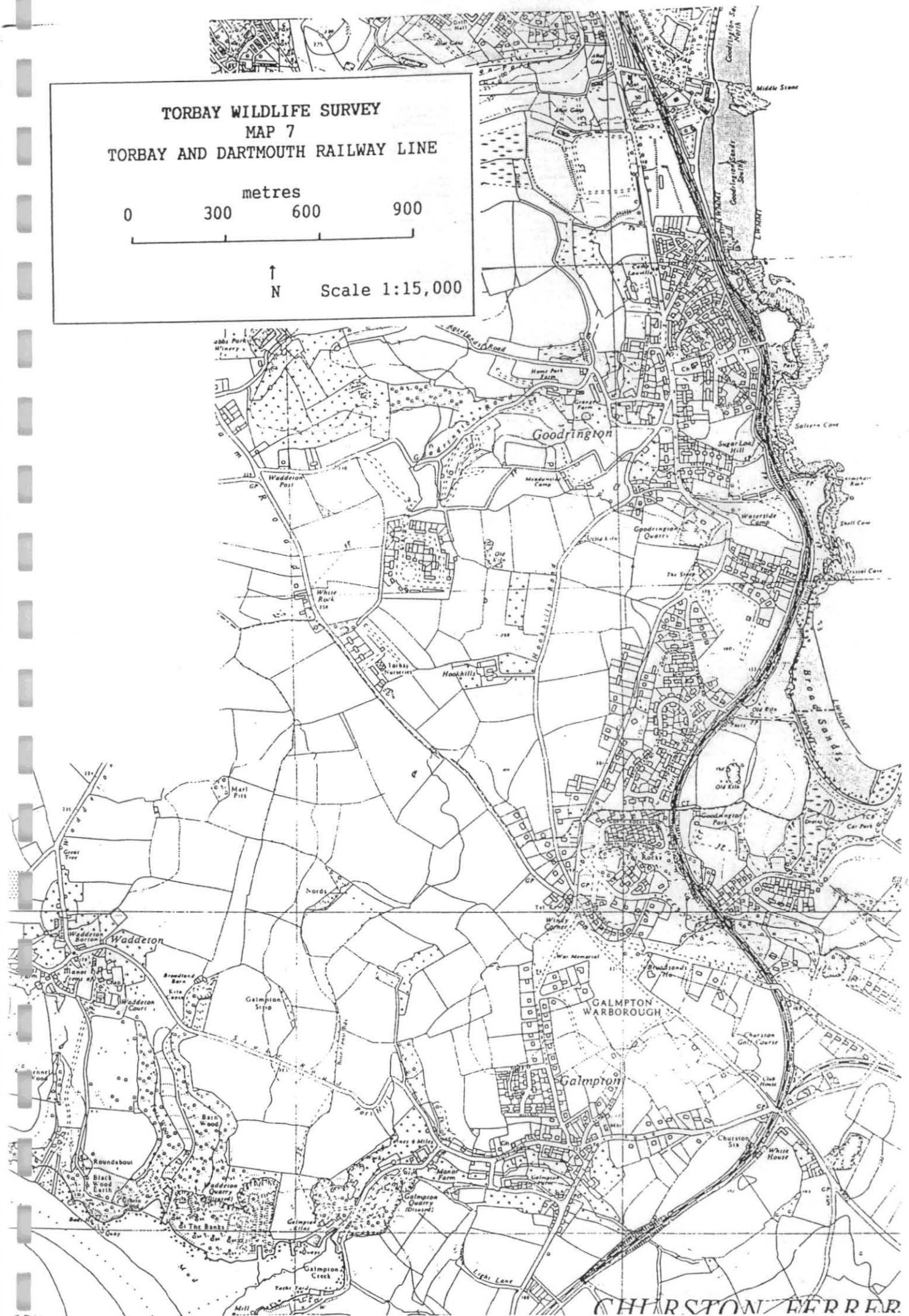
The prime management objective is the maintenance of open grassland habitats amongst the scrub and woodland so that the current diversity of habitats and species is maintained. Particular attention should be paid to maintaining open limestone grassland and stable sand dune areas.

Current management is unknown, but with no sign of recent scrub clearance beside the railway, the site appears to be currently unmanaged. It is hoped that the owners can be encouraged to manage the site sympathetically by controlled scrub clearance and maintenance of the open grassland and sand dune areas.

TORBAY WILDLIFE SURVEY
MAP 7
TORBAY AND DARTMOUTH RAILWAY LINE



↑
N Scale 1:15,000



3.4.2.8 Paignton Coast

The site includes Roundham Head and Saltern Cove SSSIs.

Description

This site comprises a series of rocky headlands in the 7km coastal strip between Broadsands and Corbyn Head, and associated areas of grassland and scrub. This section of the Torbay coast has been most intensively developed for tourism, but, despite the high levels of disturbance, the site includes a wide variety of coastal habitats, including coastal and calcareous grassland, scrub, cliffs and offshore rocks.

The breccia headlands of Corbyns Head, Livermead and Roundham Head, although sparsely vegetated, support populations of local plants such as rock sea-lavender, sea spleenwort (*Asplenium marinum*), fiddle dock (*Rumex pulcher*) and brookweed (*Samolus valerandi*). Areas of rough grassland also support the nationally rare little robin and carrot broomrape, as well as local species like round-leaved cranesbill and clustered clover.

Small numbers of herring gulls breed on the cliffs and rock pipits breed in suitably undisturbed areas. The shallow sea in this part of the bay, sheltered from prevailing south westerly winds, is one of the best areas in Devon for a variety of wintering grebes, divers and seaduck, and the only site where black necked grebe regularly occur. Offshore rocks provide high tide roosts for gulls, terns and waders and in winter hold turnstone, oystercatcher and often purple sandpiper.

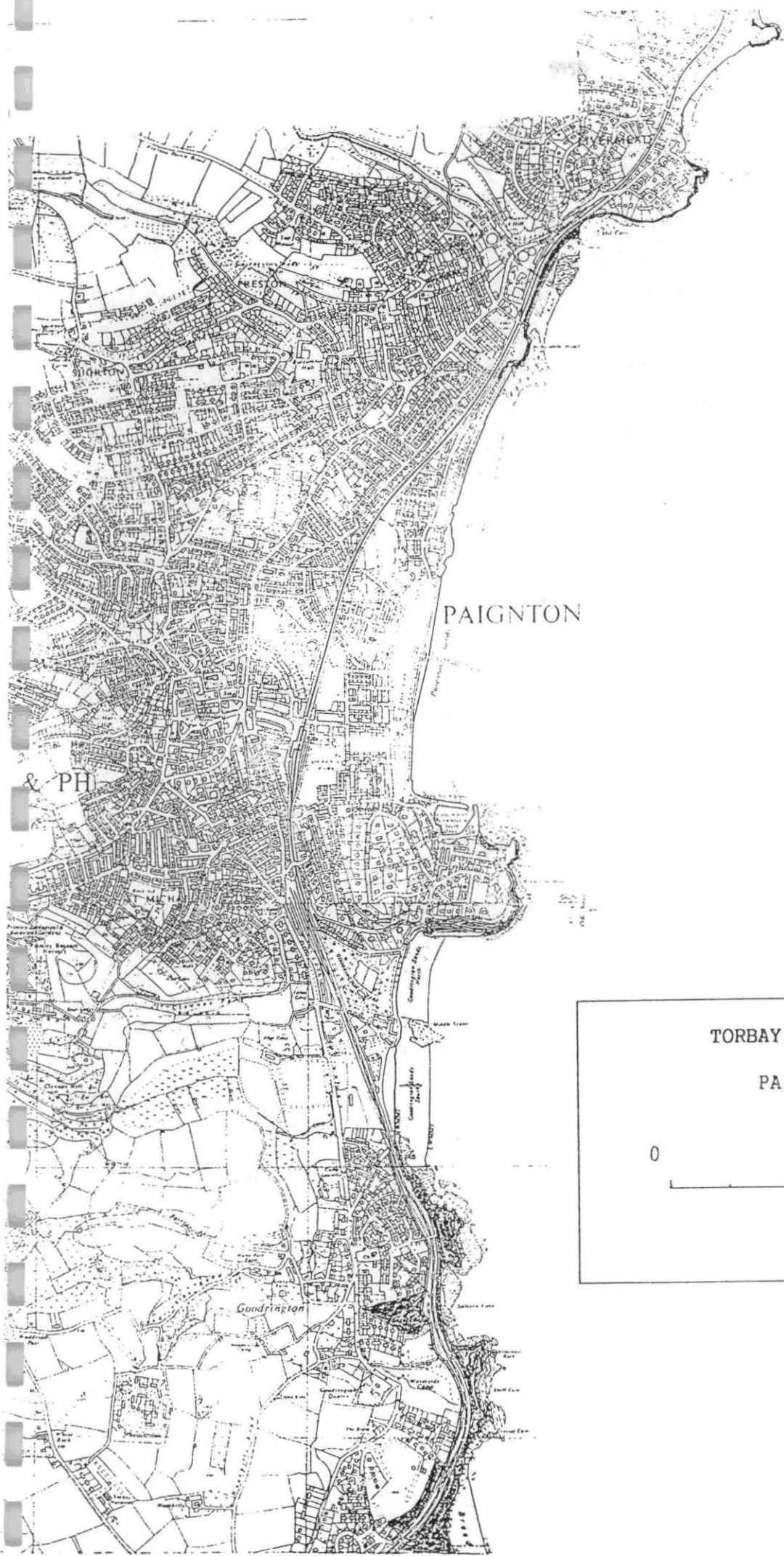
The invertebrate fauna is likely to be very rich, due to the diversity of habitats present and the intertidal flora and fauna is known to be particularly diverse, notably around Saltern Cove.

Although some sections of the headlands are under private ownership, there is generally open public access throughout this area, which plays a major recreational role in Torbay.

Conservation

It should be ensured that any further development of tourist recreational facilities on this section of coast does not affect the wildlife interest and that access to some of the less disturbed areas is not encouraged.

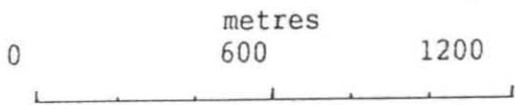
Little management is required, but the long term problem of scrub invasion of open grassland should be monitored and scrub cleared as appropriate. Also in some areas, formal grassland management would appear to be unnecessary and a more sympathetic approach would enhance the wildlife interest.



PAIGNTON

& PH

TORBAY WILDLIFE SURVEY
MAP 8
PAIGNTON COAST



↑
N Scale 1:20,000

3.4.2.9 Clennon Woods and Ponds

Description

The Clennon Valley runs down to the sea between the two urban areas of Paignton and Goodrington and is of major importance in providing an area of wildlife habitat within a heavily populated and built-up area, as well as providing an important wildlife corridor.

The western part of the site supports woodland on both sides of a steep sided valley. At least some of this woodland is of ancient origin and there are stands of old oak - ash woodland with a varied shrub layer and species rich ground flora. There is much habitat diversity in the woodland, including areas of wet willow woodland along the valley floor, steep, rather acid, bracken covered slopes and some steep rocky limestone slopes with dense calcicolous scrub.

There is no public access to the site and it retains a very wild, undisturbed nature, very unlike most of the council owned 'amenity' woods with open access and high levels of disturbance. As a result, the area has considerable value as a wildlife refuge, particularly in view of its urban situation.

The eastern part of the site has been heavily developed for recreation, and includes a series of pools dredged out by TBC some eight years ago, to encourage wildlife. The pools are fringed with stands of bulrush (*Typha latifolia*), yellow flag (*Iris pseudacorus*) and willow, and there is marginal rough grassland and scrub. This is the only area of open water of any size within the Borough and provides the area's only habitat for wildfowl. Indeed, such sites are rare in the county and the species they support are likewise restricted. The three breeding pairs of little grebe represent a significant percentage of the county total of 20 or 30 pairs and the site is amongst a handful in Devon where tufted duck occur in summer and are likely to breed. Other breeding species include mute swan and coot and in winter the ponds hold a good range of species, particularly in severe weather. The ponds also represent a valuable insect-rich feeding area for hirundines, swifts and, of particular note, bats. Ten species of dragonfly have been recorded, making this the most important dragonfly site in Torbay.

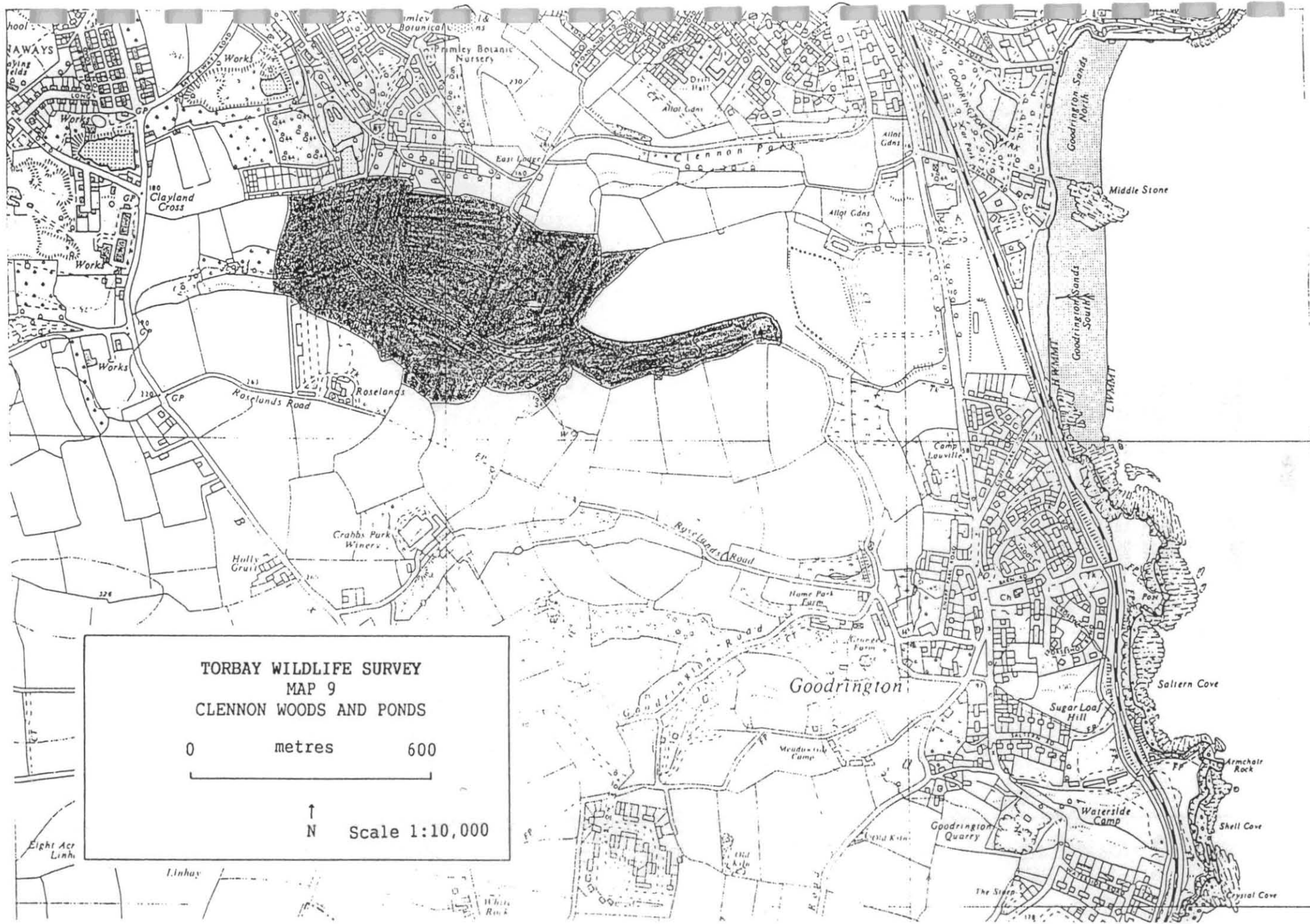
It is important to note that this habitat was only created a short time ago and as the semi-natural vegetation continues to develop and more species are attracted to colonise these communities, the wildlife interest of the site will continue to increase.

Conservation

Long term management of the woodland should seek to carry out selective thinning where necessary, clear some of the storm-damaged trees and fallen timber and maintain and enhance the system of open paths and glades, but it is hoped that such management remains at a low key level and the wild 'unmanaged' feel of the area is not lost. Opening up the site to the general public is likely to devalue the site as an undisturbed sanctuary for wildlife, although the provision of limited public access from Clennon Ponds may be appropriate.

The primary management objective for managing Clennon Ponds should be to allow the development of a mosaic of different communities adjacent to the open

water, so that attractive conditions are available for a good variety of wildlife. This area has immense education and recreation potential and may be served well by the provision of suitable information boards on such subjects as water birds and aquatic invertebrates. It would also seem to be a prime candidate for local nature reserve designation - this designation also covering the woodland, if deemed appropriate.



TORBAY WILDLIFE SURVEY
MAP 9
CLENNON WOODS AND PONDS

0 metres 600

↑ N Scale 1:10,000

3.4.2.10 Westerland Valley

Description

The site lies on the predominantly eastern slopes of a small valley running through mixed farmland on the urban fringe of Paignton. A series of small unintensively managed fields with ancient hedgerows, small pockets of woodland and scrub and areas of species-rich grassland provide excellent habitat for a good selection of the region's wildlife. This area is of greatest importance for its concentration of breeding circl buntings and represents possibly the best wildlife site in Torbay away from the coast.

Pockets of woodland and ancient hedgerows support a good selection of trees and shrubs, including dogwood, field maple, wayfaring tree, spindle and one fine example of Cornish Elm (*Ulmus minor subs angustifolia*) at the extreme edge of its range.

The stream in the valley bottom is marked by trees and shrubs, and thickets of willow are present in some areas. There are also areas of marshy grassland and tall fen vegetation with hemlock water dropwort (*Oenanthe crocata*) and yellow flag.

Although some of the fields have been improved in the past, there are extensive areas of herb-rich grassland, often with abundant knapweed, bird's foot trefoil and agrimony. Other species include pale flax, field scabious, field madder and ox-eye daisy. A series of neglected arable fields support interesting arable weed communities, including local species such as both round leaved and sharp leaved fluellen (*Kickxia spuria* and *Kickxia elatine*), small toadflax (*Chenorhinum minus*), field woundwort (*Stachys arvensis*), small nettle (*Urtica urens*) and dwarf spurge (*Euphorbia exigu*a).

Badger and fox both occur and the area is likely to be very rich in small mammals. Breeding birds include buzzard, sparrowhawk and tawny owl, along with two very local species in Devon, lesser whitethroat and lesser spotted woodpecker. In addition, the area supported at least 10 pairs of circl bunting in 1991, this representing the best site in Torbay for this species, and with almost 5% of the British population, one of the most important in the country.

The invertebrate fauna has been little studied, but would appear to be very rich. Butterflies include dingy skipper and very large numbers of marbled whites, and other notable invertebrates include both scarlet and Jersey tiger moths, glow worm and great green bush cricket.

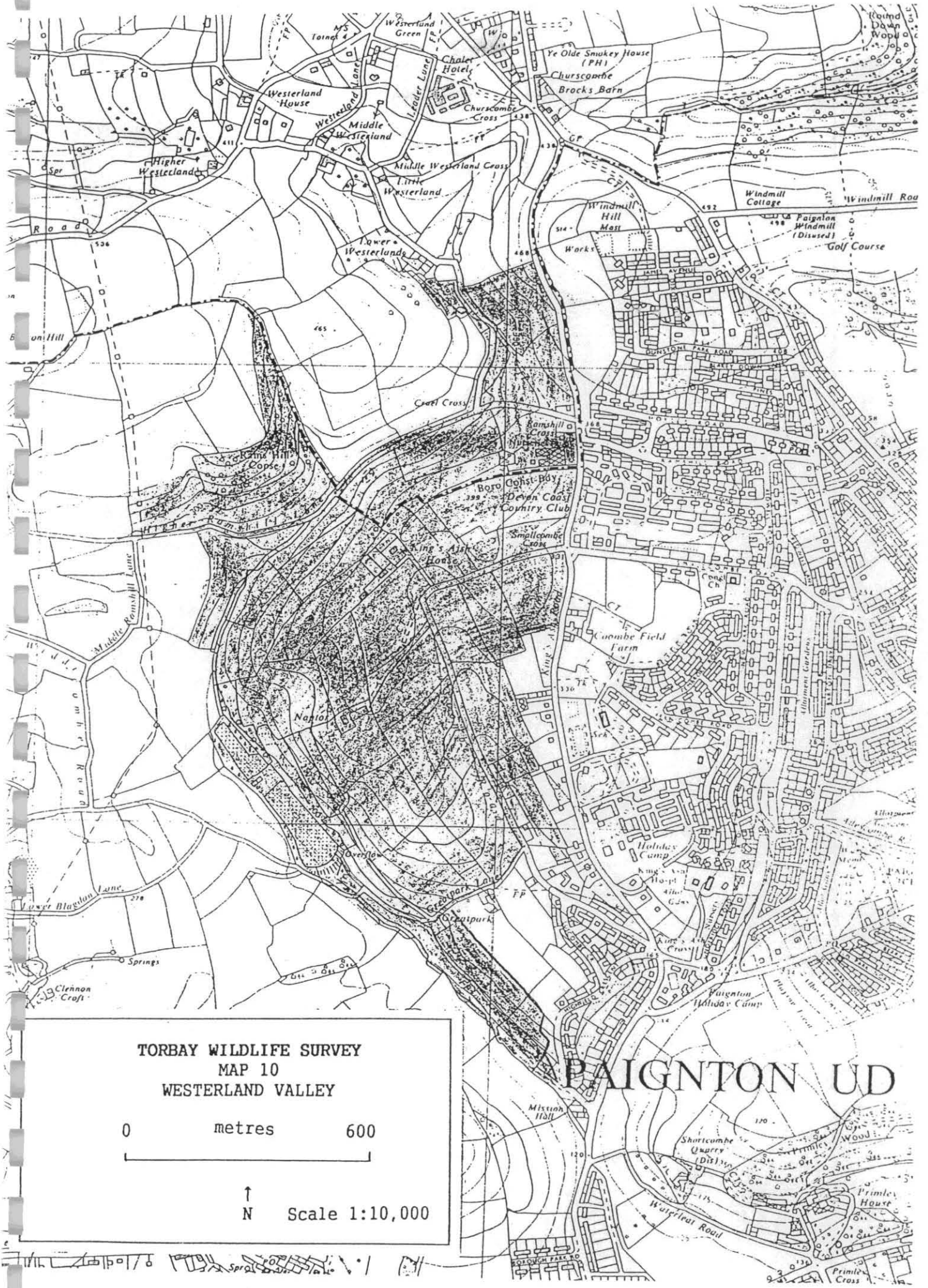
Much of the site is on private land, and in the northern half there is strictly no public access. However, there is open public access to some of the most flower-rich fields at the southern end of the valley and these play an important recreational role for local people.

Conservation

The site lies on the proposed route of Stage 3 of the Torbay ring road and consequently its future is uncertain.

In order to ensure the conservation of its wildlife interest, the major management objectives should be the maintenance of the rich mosaic of habitats

present within the valley, and the maintenance of optimum breeding and wintering conditions for cirr buntings. The area has considerable recreational and educational potential and, particularly the southern section, would seem to be very suitable for designation as a country park or even local nature reserve.



TORBAY WILDLIFE SURVEY
 MAP 10
 WESTERLAND VALLEY

0 metres 600

↑ N Scale 1:10,000

PAIGNTON UD

3.4.2.11 Occombe Woods

Description

The site comprises an extensive area of woodland with some fringing grassland and scrub of great wildlife interest, particularly because of its position on the urban fringe and its value as a major wildlife corridor running into the urban heart of Torbay. The site is heavily used by the public and plays an important social role.

At least some of this woodland is of ancient origin and there are some good stands of oak - ash woodland with hazel coppice and a rich ground flora. Bluebells form a colourful carpet in some areas, and other species include early purple orchid, ramsons (*Allium ursinum*) and town-hall clock. Adjacent grassland and scrub communities are important to the ecology of the area and some of the grassland is particularly attractive and herb-rich.

The woodland supports large numbers of birds including great spotted and green woodpeckers, buzzard and tawny owl, along with fox and badger. Some of the fringing grassland areas are important for butterflies with marbled white, dingy and grizzled skippers present, and ciril buntings breed in adjacent farmland.

There is open public access throughout the site.

Conservation

The western end of the site is affected by a current golf course proposal and future management of some of the marginal grassland areas is likely to be affected by such development. Guidelines for design, construction and management of the golf course have been produced by EN/DWT to minimise damage to wildlife habitats. The bulk of the area is under no current threat.

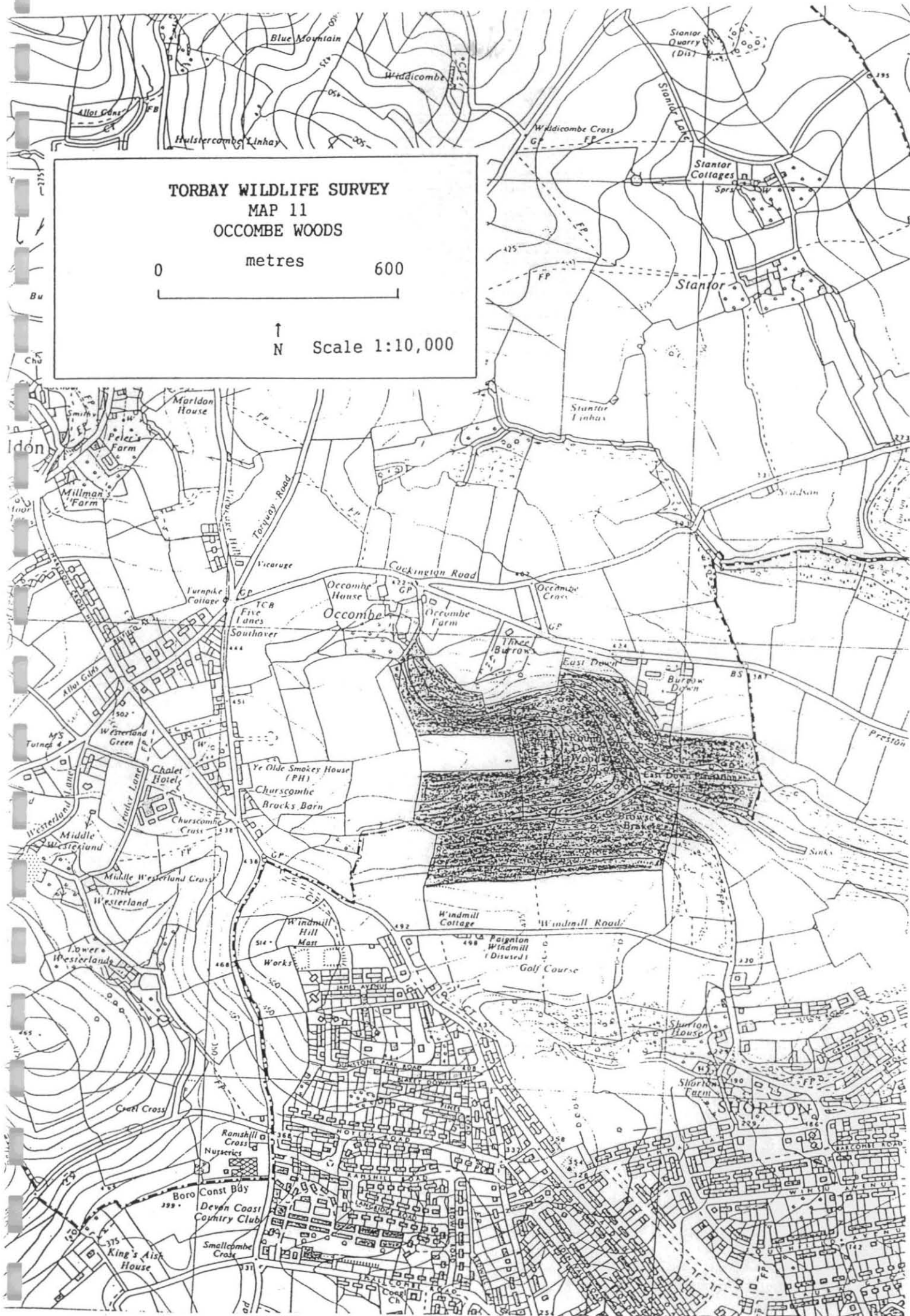
Long term woodland management should seek to thin and control invasive sycamore and maintain and enhance the system of open rides and glades. Low intensity management of open grassland areas should be maintained through the control of scrub invasion. These management objectives are to be recognised in a new management plan for the area currently being drawn up by TBC's Arboricultural Officer.

The site has been considered as a possible LNR in the past, and such designation, perhaps, should be considered again.

TORBAY WILDLIFE SURVEY
MAP 11
OCCOMBE WOODS

0 metres 600

↑ N Scale 1:10,000



3.4.2.12 Occombe Meadows

Description

The site consists of a series of traditionally managed meadows, supporting stands of unimproved neutral grassland - one of the most vulnerable and threatened habitats in Britain.

The species-rich meadows support large populations of southern marsh, heath spotted and common spotted orchids (*Dactylorhiza praetermissa*, *D. maculata* and *D. fuchsii*), along with Devils-bit scabious, yellow rattle and pignut. There are also damp area dominated by sedges and rushes that include species such as marsh arrow-grass (*Triglochin palustris*) and marsh valerian (*Valeriana dioica*) that are very rare in Devon. The wildlife value of the site is further enhanced by a series of thick, species-rich hedgerows and a small area of wet alder-sallow woodland.

Mammals recorded include water shrew and harvest mouse and a good selection of birds are present in the woodland and hedgerows. Amongst the butterflies, marbled whites are very abundant and the local scarlet tiger moth is also present.

The site is owned by TBC, but there is at present no public access.

Conservation

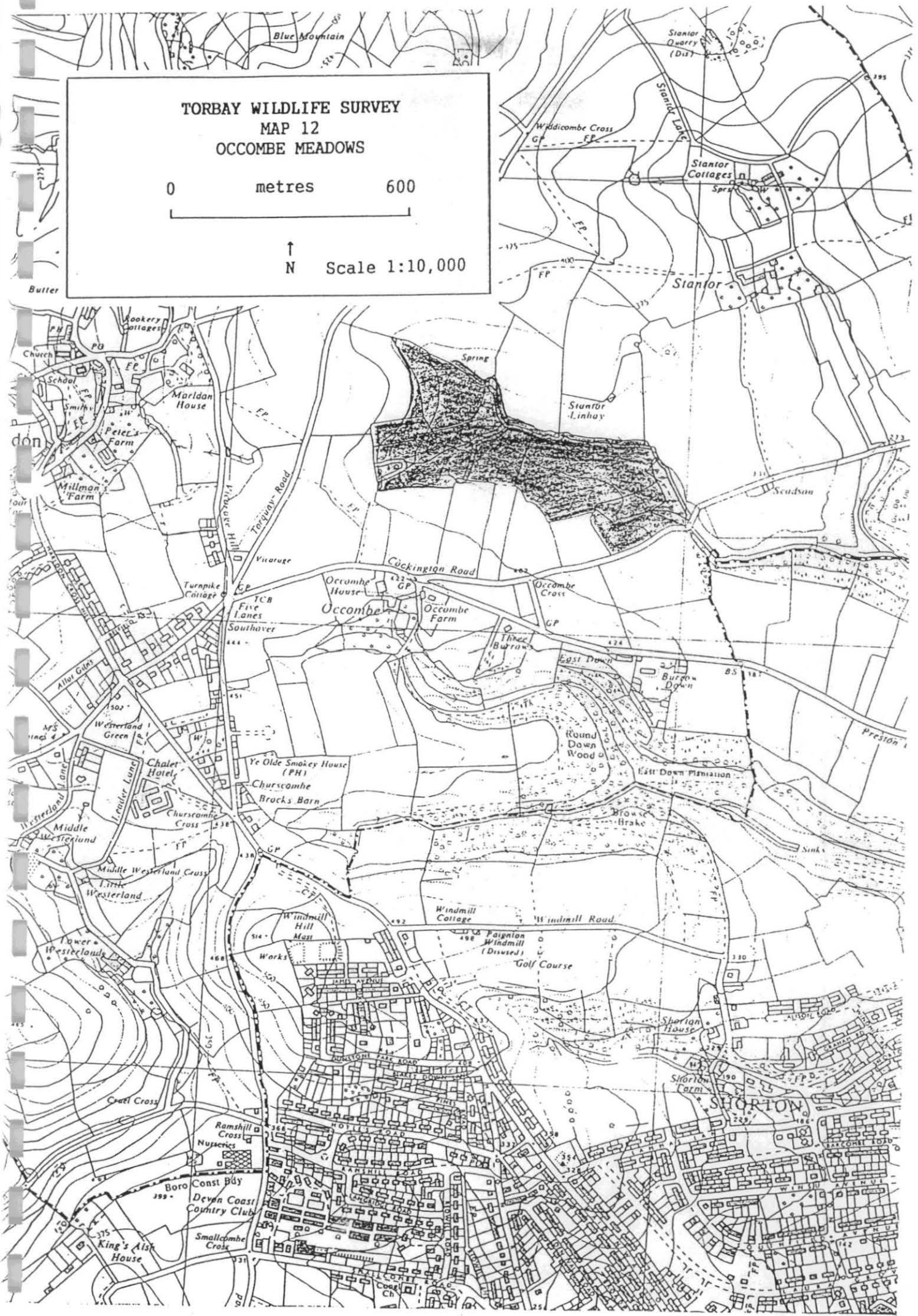
The site is threatened by a current golf course proposal and future management of the site will clearly be affected by such development. Part of the site has been scheduled by EN as a SSSI. The remainder is likely to be incorporated within the golf course, but design, construction and management guidelines have been produced by EN/DWT to minimise damage to wildlife habitats both inside and outside the proposed SSSI.

Future management of the SSSI meadows is likely to involve a continuation of traditional methods of cattle grazing and hay cutting.

TORBAY WILDLIFE SURVEY
MAP 12
OCCOMBE MEADOWS

0 metres 600

↑ N Scale 1:10,000



3.4.2.13 South Torquay Coast

This site includes Dyers Quarry, Daddyhole and Meadfoot Sea Road SSSIs, notified primarily for their geological interest.

Description

An excellent site with a diversity of coastal habitats, including areas of nationally important limestone grassland.

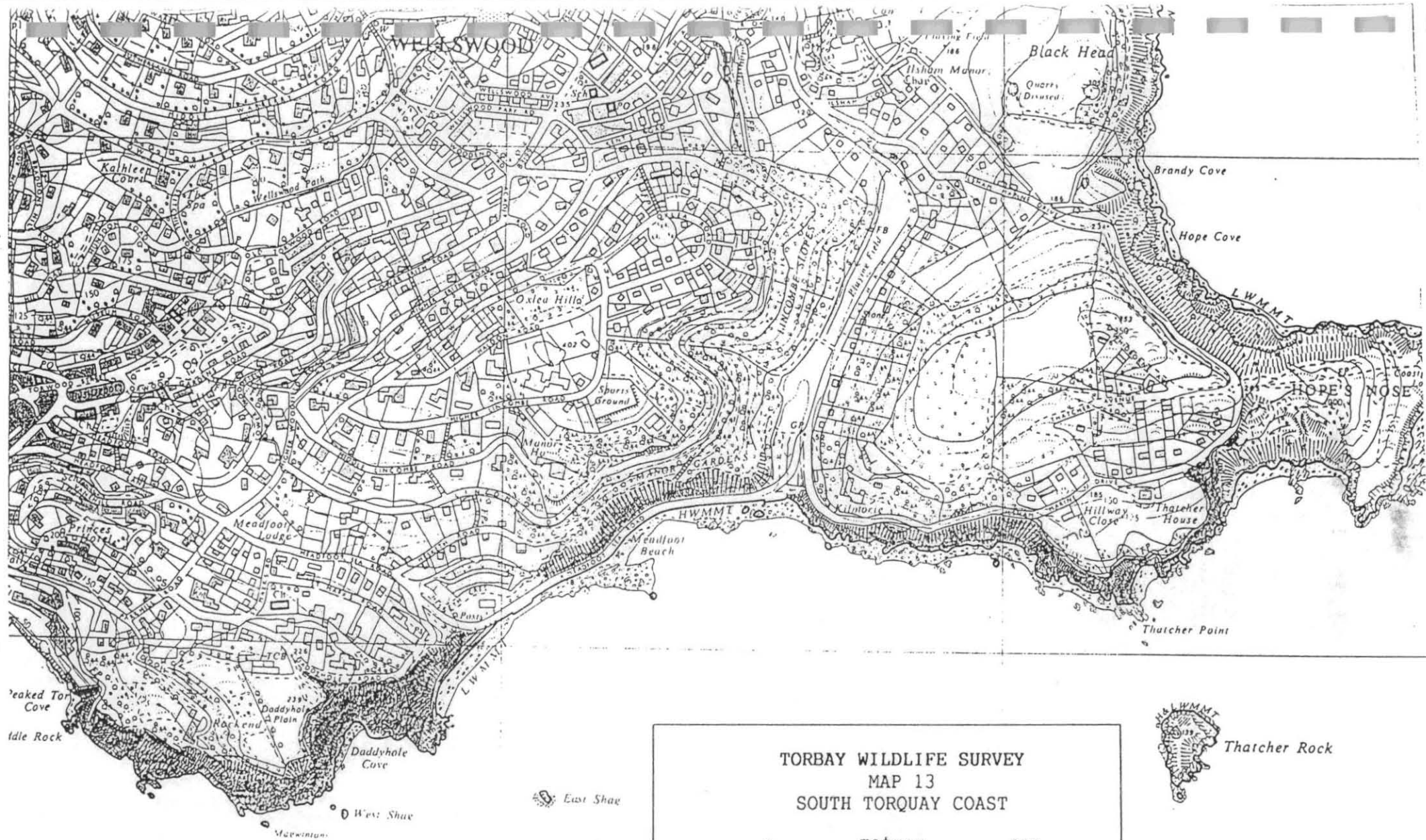
The generally south facing cliff slopes support extensive stands of scrub with blackthorn, bramble, bracken, privet, guelder rose and a few specimens of a nationally rare whitebeam at Daddyhole. However, in many places, this scrub is dominated by alien species, notably holm oak which has invaded areas of open grassland in recent years. The remaining grassland areas are of great interest and support nationally rare plants such as small rest-harrow, white rock-rose and little robin. Amongst the long list of species of interest are ivy broomrape, autumn squill, bulbous meadow-grass, wall bedstraw, horseshoe vetch, sea storks-bill and wild clary (*Salvia verbenaca*).

The invertebrates of the site have been poorly studied, but the site is likely to be of great interest.

The coast path, and in places, sections of roads, run through the site, allowing unlimited public access to some areas. However, steep, often scrub covered slopes prevent access to many areas of cliff and undercliff.

Conservation

Although the holm oak scrub is of some value for providing cover for birds and mammals, the dense shade created by this evergreen shrub prohibits the growth of other species, and the resultant scrub/woodland is very poor in species. More significantly, there has been a loss of nationally important limestone grassland in recent years. The major management priority is that holm oak invasion is controlled, and future management of the site should concentrate on the creation and maintenance of open areas of grassland within this scrub complex. In some areas, specific site management is required for the rare species - notably small rest-harrow. These management objectives are to be recognised in a new management plan for the site, currently being drawn up by TBC.



TORBAY WILDLIFE SURVEY
 MAP 13
 SOUTH TORQUAY COAST

0 metres 600

↑
 N Scale 1:10,000



3.4.2.14 Hopes Nose - Walls Hill SSSI

Description

This site is of outstanding importance for its diversity of coastal habitats and notably for areas of limestone grassland that support many rare and local species. The site also displays an outstanding selection of geological features of interest.

Facing in a generally easterly direction, the coast has a variety of aspects provided by various headlands and bays. The limestone cliffs are steep in places and rise to over 200ft, and parts are vegetated by woodland, scrub and grassland. The largest extent of grassland occurs at Walls Hill, which is a flat-topped headland having a thin soil and much exposed bare rock.

The characteristic woodland canopy species are ash and sycamore, but other species include small leaved lime, field maple and oak. The understorey contains hazel, spindle, wayfaring tree, yew and hawthorn. The ground flora is rich and includes wood spurge, spurge laurel, goldilocks, early purple orchid, dogs mercury and sanicle (*Sanicula europaea*). Areas of scrub contain elder, bracken, bramble, gorse and blackthorn.

The limestone grassland, particularly at Walls Hill, is very species rich with pyramidal orchid, autumn ladies tresses, kidney vetch, horseshoe vetch, autumn squill and, portland spurge, along with the nationally rare white rock-rose, small hares-ear and carrot broomrape. The cliffs and coastal grassland also supports many local species such as tree mallow, wild cabbage, maidenhair fern and sea storksbill.

The low pollution levels in the area and variety of habitats have also allowed a rich and diverse lichen flora to develop.

Such habitat diversity also supports a great deal of other wildlife interest. Small numbers of breeding seabirds occur on the cliffs, with large numbers on the offshore islands of Thatcher Rock and Ore Stone. These include the largest kittiwake colony on the south coast. A wide range of other breeding species include little owl, rock pipit and kestrel. Butterflies recorded include small blue, marbled white and brown hairstreak, and with such a range of habitats, the invertebrate population is likely to be outstanding and merits further study.

The area is well served by footpaths, and there is open public access over the site. The area as a whole, but particularly Walls Hill, represents an outstanding recreational area in Torbay.

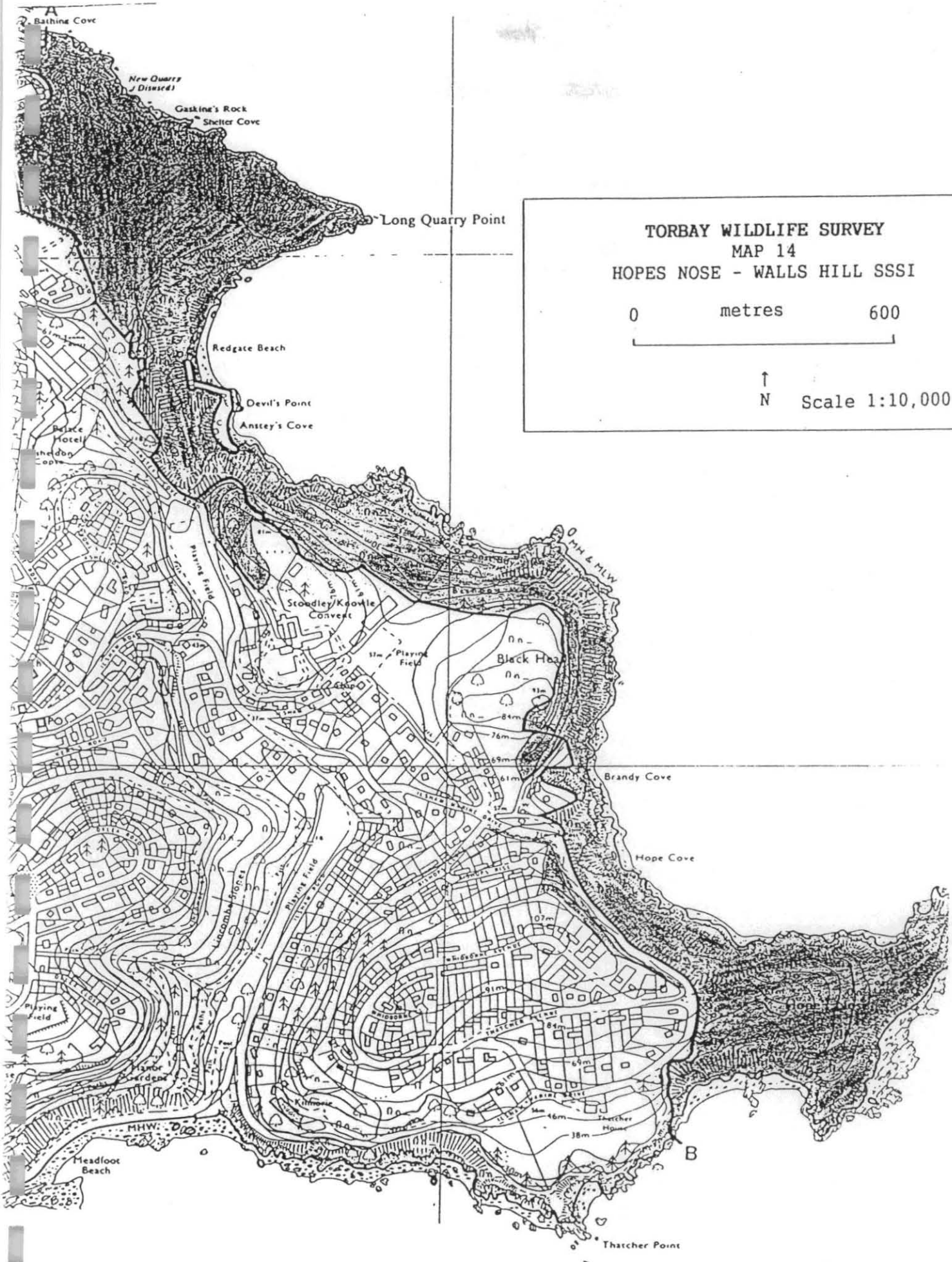
Conservation

The prime management objective is the maintenance of open limestone grassland amongst the coastal scrub/woodland complex, so that the current diversity of habitats and species is maintained. Control of invasive scrub into open grassland is the major priority and future management of the site should concentrate on the creation and maintenance of open areas of grassland within the scrub/woodland complex. Management of the grassland areas themselves should encourage a diversity of sward types, but should generally concentrate on the maintenance of a short, herb-rich turf. In some areas very site-

specific management is required for some rare species. Management of woodland areas should concentrate on selective thinning and the control of undesirable species.

A considerable amount of survey and monitoring work is strongly recommended, including detailed monitoring of all nationally rare plant species and notable invertebrate populations. It is also suggested that more attention is paid to the study and monitoring of seabird populations, particularly those of the offshore islands.

These management objectives are to be recognised in a new management plan for the area currently being drawn up by TBC's countryside staff.



TORBAY WILDLIFE SURVEY
MAP 14
HOPES NOSE - WALLS HILL SSSI

0 metres 600

↑
 N Scale 1:10,000



3.4.2.15 Petit Tor - Watcombe Coast

This site includes Babbacombe Cliffs - geological SSSI

Description

Another outstanding coastal site extending north from Walls Hill SSSI to Watcombe Head, and including a superb range of coastal habitats. The east-facing cliffs rise to over 200ft in places, but are interrupted by a series of sheltered bays with boulder strewn beaches, rocky headlands and areas of maritime grassland and scrub. The cliff top habitats include species-rich grassland, scrub and woodland.

Extensive areas of ash - sycamore woodland are present. The structure of this woodland, together with aspects of the flora show the complex to be of secondary origin. Analysis of old maps and aerial photographs clearly indicates that a pattern of open rough fields with scattered scrub existed in the past. Despite their recent origins, these woodlands do support several interesting species such as ivy broomrape, Cowslip (*Primula veris*), Columbine (*Aquilegia vulgaris*), spurge laurel, wood vetch (*Vicia sylvatica*) bastard balm, and purple gromwell. Woodland margins often grade into areas of dense calcicolous scrub, particularly on the cliff edges, and two nationally rare whitebeams are present. Small areas of grassland are present in some areas and along with some of the cliff slopes, support notable species such as rock sea-lavender, horseshoe vetch, narrow-fruited corn salad, wild cabbage and portland spurge.

A series of cliff-top fields show varying degrees of improvement, but in some cases support a very species-rich sward that includes pale flax, yellow rattle, marjoram, pyramidal orchid and bee orchid.

Badgers occupy the woodland areas, and a good selection of woodland birds are present. Seabirds breed in small numbers on suitable cliffs and a small population of circl buntings occur in one area. The invertebrate fauna is largely unrecorded but notable butterfly species include small blue, dingy skipper and marbled white.

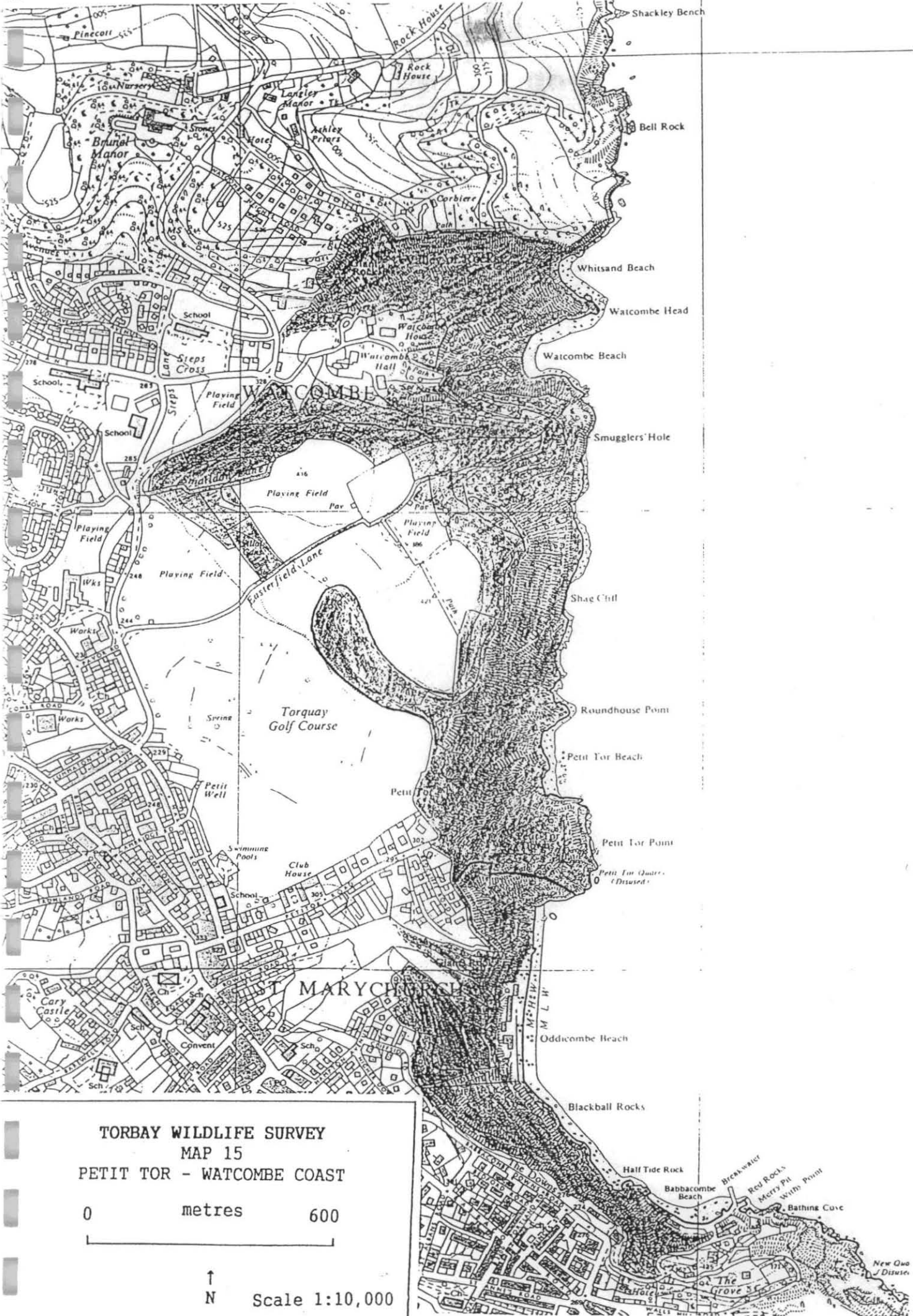
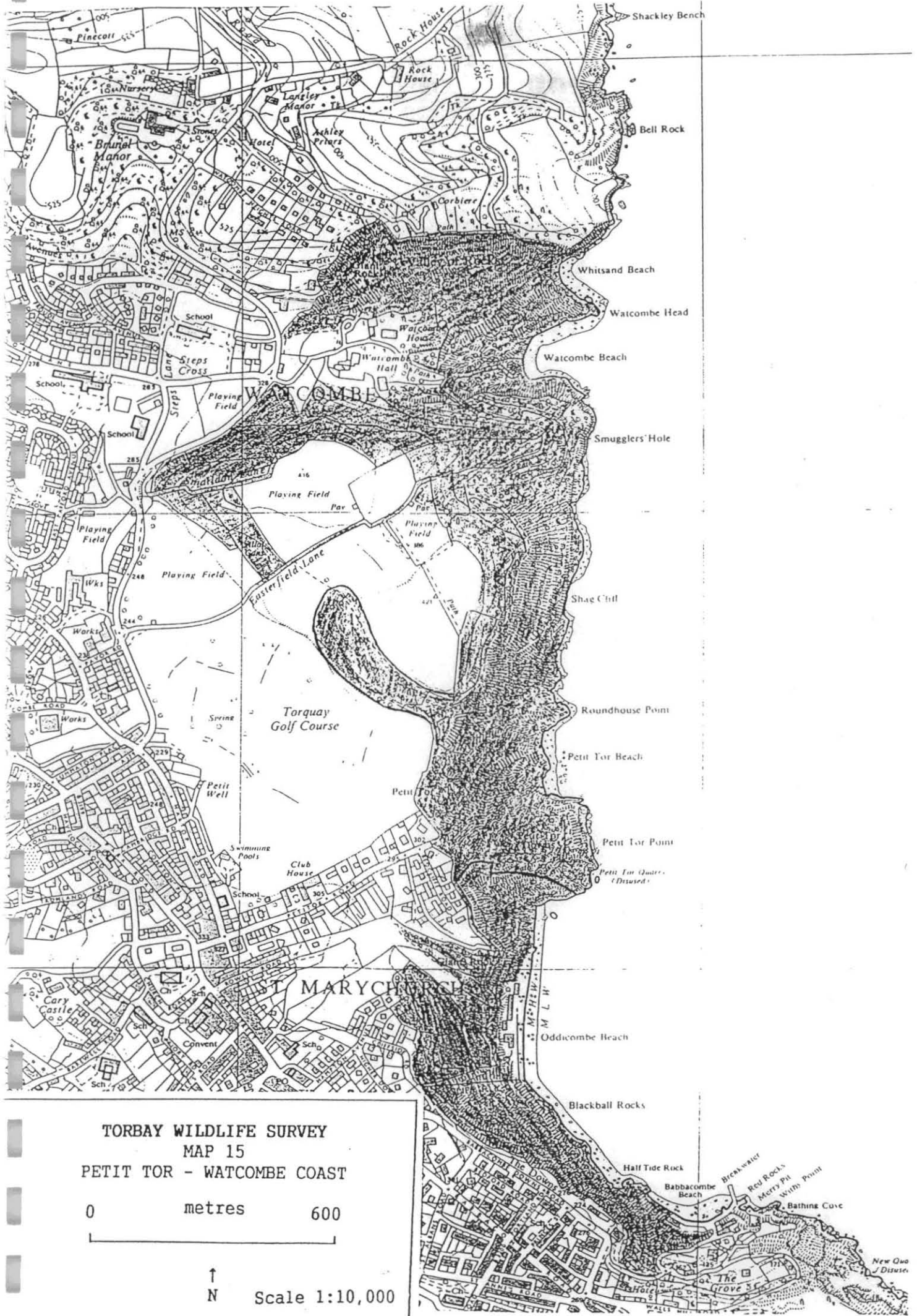
The coast path runs through the site and there is open public access over most of the area.

Conservation

The prime management objective is the maintenance of areas of open grassland amongst the scrub/woodland complex, so that the current diversity of habitats and species is maintained. Within the woodlands, selective thinning and control of undesirable species is necessary.

Management of the cliff top fields should favour the development of a more species-rich sward, and sympathetic management of hedgerows should be a priority in circl bunting areas.

These management objectives are to be recognised in a new management plan for the area, currently being drawn up by TBC's countryside staff.



3.4.2.16 Maidencombe

Description

This site comprises the northernmost coastal section of the Borough and is centred on the delightful unspoilt hamlet of Maidencombe. This east-facing section of coast is marked by a largely unbroken section of cliff, reaching over 200ft, with a narrow strip of coastal scrub and woodland. Inland the area is farmed, and north of Maidencombe where farming is most intensive, the wildlife interest is largely restricted to the narrow coastal strip.

Coastal scrub is dominated by bracken, blackthorn, elder, privet, bramble and English elm and in some places ash-sycamore woodland has developed. This woodland is considered to be of very recent origin. The line of cliffs is broken only by the small boulder strewn beach at Maidencombe, where small areas of coastal grassland occur.

Seabirds, including cormorant, shag, fulmar and great black-backed gull, breed on suitable cliffs, and the undisturbed undercliff areas support breeding rock pipit, shelduck and possibly oystercatcher. Woodland species include breeding buzzard, sparrowhawk and raven and there is a large population of badgers. The series of small, unintensively managed fields extending south from Maidencombe provide ideal conditions for breeding and wintering circl bunting, and at least 3 pairs were present in 1991.

The coast path runs the length of the site, but public access away from the path is very restricted with much of the land under private ownership or inaccessible.

Conservation

As the coastal woodland/scrub occupies such steep slopes, management of these areas is impossible and as a result, little management effort is involved for this site. The major management objective here is the management of the cliff-top fields for circl buntings; the RSPB, TBC and the tenant farmers are currently discussing the future management of these fields to ensure that optimum breeding and wintering conditions are maintained.

TORBAY WILDLIFE SURVEY

MAP 16

MAIDENCOMBE

0 metres 600



N Scale 1:10,000



3.4.2.17 Barton

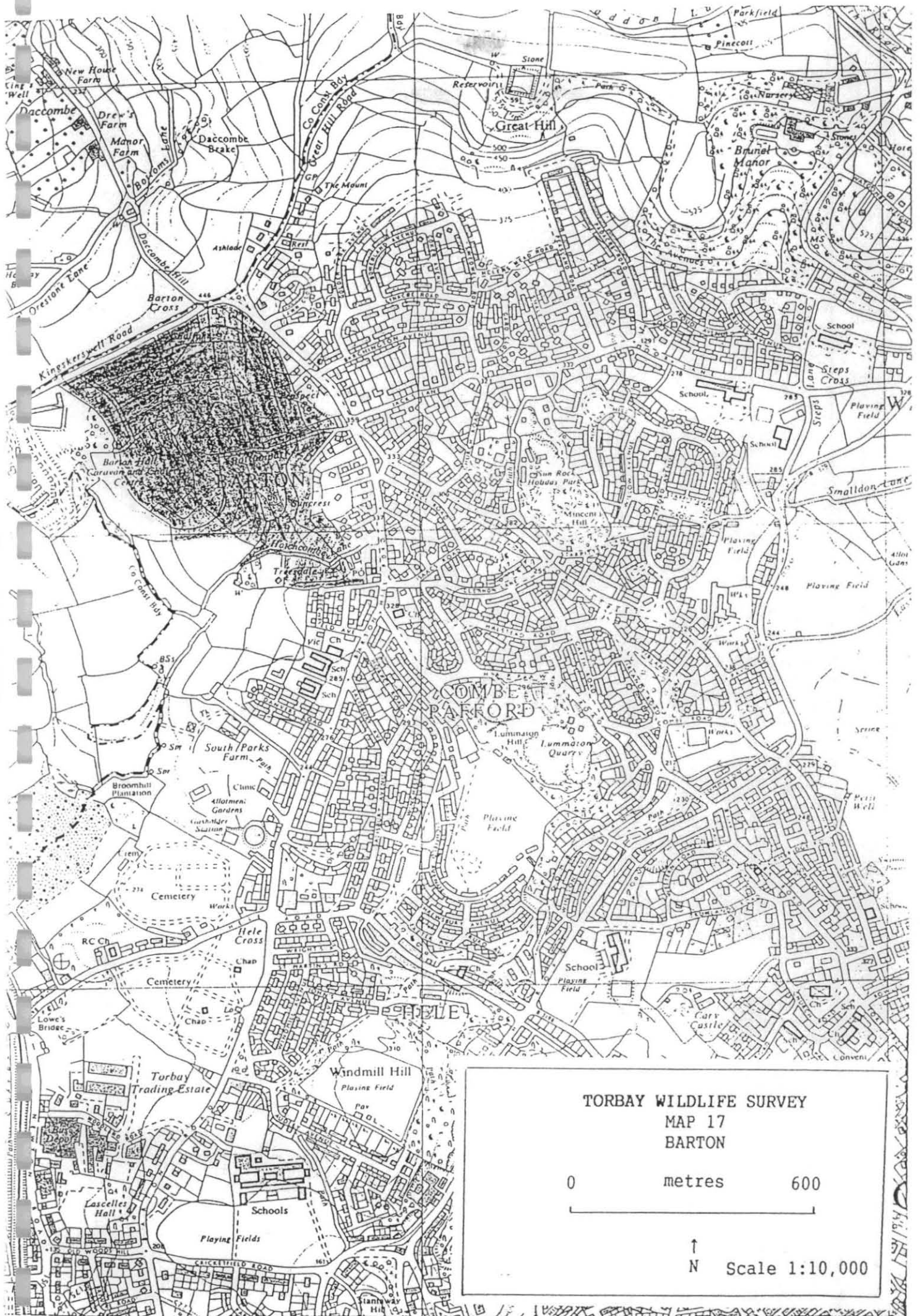
Description

This site comprises an area of unintensively managed fields, with hedgerows and scrub lying adjacent to and to the east of the Scotts Bridge/Barton development site. Most of the fields are improved, but there are some stands of herb-rich grassland with birds-foot trefoil, knapweed, burnet saxifrage and ox-eye daisy. However, the major interest of the site is the presence of a small population of breeding ciril buntings.

Conservation

Recent development of the Barton area has destroyed and fragmented suitable ciril bunting breeding and wintering habitat and this site now represents the largest contiguous area of such habitat remaining. If further development is to go ahead, it is essential that further incursion into this site is avoided, so that should any further loss of habitat occur, a secure alternative site is provided. Current and future development of the Barton area is likely to further concentrate the ciril bunting population of Barton into this site, and as a result it should be protected at all costs.

Future management of the area should seek to provide optimum conditions for breeding and wintering ciril buntings.



4 NATURE CONSERVATION IN TORBAY

4.1 ACHIEVEMENTS OF THE WILDLIFE SURVEY

The achievements of the wildlife survey can be summarised as follows:

- a) The wildlife of Torbay has been extensively surveyed and documented, and detailed information is now available on nearly 100 sites of wildlife interest within the Borough.
- b) The wildlife interest of the Borough has been evaluated, and the most important sites identified. One site documented by the survey has been notified by EN as a SSSI, and several sites have been recognised as meeting the necessary criteria for selection as SSSIs. A number of sites have been recognised as representing examples of the best wildlife sites within Devon and have consequently been recognised as County Wildlife Sites (CWS). Other areas, termed Local Wildlife Sites (LWS) have been highlighted for their importance in a local context; many of these serve important social, recreational or educational roles. Rare habitats and species with particular conservation needs have been highlighted.
- c) Site inventory maps have been produced, showing the location of all these sites. This inventory is of great value in the planning of future development and in the targeting of resources.
- d) For the majority of sites, management objectives have been drawn up so that current wildlife interest can be maintained and, where possible, enhanced. On many Council owned sites, as a result of ongoing liaison with officers of TBC's countryside staff, current management practices have already been adjusted to accommodate the wildlife interest of these areas and management plans are currently being drawn up incorporating findings and suggestions made during the survey.
- e) The project has helped to raise the profile of wildlife and nature conservation within the Borough as a whole.

4.2 THE NEED FOR FURTHER WORK

The documentation of the wildlife interest and identification of the most important sites within Torbay represents a major step towards the conservation of the Borough's rich wildlife heritage. However, it is not an end in itself and should be considered as forming only part of a much broader wildlife strategy for the Borough, encompassing site protection and enhancement and environmental education. Such a strategy would not only afford protection to the major sites and the links between them, but also raise the general awareness of the public to wildlife in the Borough as a whole, and encourage community involvement in the creation, management and enjoyment of wildlife sites.

Many local authorities across the country have drawn up nature conservation strategies, based on wildlife surveys of this sort. It is strongly recommended that TBC consider the value of drawing up such a strategy so that departments throughout the authority can work together to ensure that nature

conservation is fully considered in all future developments and long term management.

4.3 A SUGGESTED FRAMEWORK FOR A NATURE CONSERVATION STRATEGY FOR TORBAY

The major aims of such a strategy should be:

- The protection of sites of wildlife interest.
- The appropriate management of sites of wildlife interest.
- The creation of new sites and enhancement of existing ones.
- The creation and protection of a system of wildlife corridors.
- The development of public access to these areas.
- The promotion of nature conservation.

4.3.1 THE PROTECTION OF SITES OF WILDLIFE INTEREST

The first step should be to protect valuable sites through designations such as SSSIs, LNRs, CWSs and LWSs and the recognition of these sites within the local plan.

1) Sites of Special Scientific Interest

There are at present ten SSSIs within Torbay. These are:

Berry Head - Sharkham Point
Hopes Nose - Walls Hill
Lummaton Quarry
Dyers Quarry
Daddyhole
Roundham Head
Meadfoot Sea Road
Babbacombe Cliffs

However, this current SSSI coverage does not adequately protect the outstanding wildlife interest of Torbay. Berry Head - Sharkham Point SSSI and Hopes Nose - Walls Hill SSSI represent the premier wildlife sites within the Borough, but the remainder have been notified primarily because of their geological interest. Lummaton Quarry has little wildlife interest, but the other sites all have considerable nature conservation interest both within them and adjacent to them and it is strongly recommended that these sites are re-notified with revised site boundaries so that this interest is recognised.

In addition to these modifications to the existing SSSI network, a number of new sites identified during the survey fulfil criteria drawn up by EN to be used as guidelines for SSSI notification. One of these sites, Occombe Meadows, has recently been notified as a SSSI, and it is strongly recommended that a further five sites should be drawn to the attention of EN with a view to their being notified as SSSIs. The sites involved are:

Sharkham Point
The Grove
Fishcombe Point - Elberry Cove
Westerland Valley
Watcombe / Petit Tor area

II) Local Nature Reserves

A number of sites are considered to be suitable for possible designation as LNRs and thus receiving statutory protection. TBC are responsible for this designation, but it is subject to approval by EN and candidate sites are expected to fulfil the following criteria. Sites should be:

- i) of high natural interest in the local context (SSSI or near equivalent)
OR
- ii) of reasonable natural interest and of high value in the Torbay context for formal education and research OR
- iii) of reasonable natural interest and of high value in the Torbay context for the informal enjoyment of nature by the public OR
- iv) any combination of these AND
- v) capable of being managed with the conservation of nature and/or the maintenance of special opportunities for study or research as the priority concern.

TBC have already designated one LNR, Sugarloaf Hill and Saltern Cove LNR, and their continued interest in designating further sites should be applauded. Most of the CWSs identified on the survey fulfil the necessary criteria and are particularly suitable for consideration as candidates for LNRs. Sites which might be particularly suitable for such designation include:

Most of the coastal strip, particularly; Walls Hill/Hopes Nose, Watcombe/Petit Tor, St Marychurch woods and meadows, Fishcombe Point/Elberry Cove and Berry Head/Sharkham Point.

The Grove
Occombe Woods
Clennon Ponds (and woods)
Galampton Warborough Common/Tor Rocks
Disused railway line, Churston
Westerland valley (southern section)

It is to be hoped that TBC will act swiftly to complete the designation of at least some of these important sites within the Borough.

III) Other Sites

The designation of sites as CWSs or LWSs recognises their importance for wildlife, but these are not statutory designations and these sites receive no legal protection. It is therefore important that TBC recognise these sites within the local plan and that they are protected by a series of policy statements recognising this wildlife interest and committing the Council to maintaining and enhancing this interest wherever possible. It is therefore recommended that all CWSs are individually recognised in the local plan and that there will be a presumption against development affecting all of the CWSs.

There should be a process of routine consultation of the DWT, who can provide specialist knowledge of the wildlife interest of sites, following planning applications affecting any sites of wildlife interest. In addition, where development is to go ahead, every effort should be made to retain features of interest, and specialists with the DWT or EN should be consulted to give advice on how development can cause least damage to the wildlife interest of the site concerned.

4.3.2 THE MANAGEMENT OF SITES OF WILDLIFE INTEREST

Building on this foundation of site protection, efforts should be made to ensure that wildlife sites are managed correctly so that their interest is maintained and enhanced. The aim should be to draw up and implement a management plan for each site of wildlife interest, starting with TBC owned land and then proceeding to private land through the agency of persuasion and agreement. Some sites could be leased to conservation bodies or local groups.

TBC are currently drawing up management plans for most of the Council owned land in the Borough which represent the bulk of the wildlife sites within Torbay. TBC are to be applauded for their efforts and it is hoped that this current commitment to appropriate management of wildlife sites does not diminish.

It is also hoped that TBC will be able to secure appropriate management of private land through the agencies of persuasion and agreement.

4.3.3 THE CREATION OF NEW SITES AND THE ENHANCEMENT OF EXISTING ONES

Opportunities for habitat creation, enhancement and development within Torbay are enormous. Although most natural habitats are impossible to re-create in their original complexity, habitat creation is considered a valuable exercise in compensating for the loss of such habitats elsewhere. Habitat creation is particularly important in urban areas where these sites may be developed for their educational and recreational potential and take pressure away from more fragile semi-natural sites.

Some of Torbay's parks and areas of public open space would seem to offer great opportunities for habitat creation and enhancement. Less regular mowing of verges, and areas of grassland within parks, and the use of native trees and shrubs in new planting, would considerably enhance the wildlife value of these areas.

Through the 'creation' of Clennon Ponds, TBC have already shown that they value the concept of habitat creation and with imagination and enthusiasm, opportunities for the Council to do further work in this field are endless.

4.3.4 THE CREATION AND PROTECTION OF A SYSTEM OF WILDLIFE CORRIDORS

The unplanned and piecemeal way in which urban areas have developed, together with natural constraints imposed by topography, generally result in isolated areas of semi-natural habitat being left within an urban matrix. Thus a characteristic of urban habitats tends to be their isolation from one another, this isolation often resulting in species impoverishment. Therefore, linking together blocks of habitat is helpful in breaking down this isolation as well as having benefits in terms of landscape and recreational use. These links

have been termed 'wildlife corridors' as they allow wildlife to move along a 'corridor' from one site to another.

The establishment of a system of wildlife corridors has to be seen as a major aim of a nature conservation strategy, as it allows isolated units to benefit from contact with other urban sites, and allows links to be made with the wider countryside, permitting the movement of species from the rural fringe right into the heart of urban areas.

It is important to note that evaluation of wildlife sites in Torbay did not specifically target the selection of suitable wildlife corridors, but it is essential that the importance of these areas be recognised. In Torbay, there is a natural system of wildlife corridors that need to be protected and maintained and, where they include areas of relatively low wildlife interest, benefit from further provision of wildlife habitat. These areas are:

- I) The coastal strip, extending along the entire coast of the Borough.
- II) The series of valleys running from the urban fringe towards the sea, and into the urban heart of Torbay - Occombe Valley, Cockington, Scadson Plantation/10 Acre Brake, Clennon Valley/Goodrington.
- III) The existing railway network, including the Torbay and Dartmouth Steam Railway, which links numerous sites throughout the Borough.

4.3.5 THE DEVELOPMENT OF PUBLIC ACCESS TO THESE AREAS

The social benefits gained by access to semi-natural areas are many and varied. It is therefore important that as many people as possible should have access to such sites for recreational and educational purposes, as well as for the quietness they afford for contemplation.

Most wildlife sites in Torbay are currently well served by public rights of way, and many of the Council owned sites have open public access. Further provision of public access to suitable sites should however be investigated.

4.3.6 THE PROMOTION OF NATURE CONSERVATION

This should include the generation of interest in nature conservation and the encouragement of community involvement in the creation, management and enjoyment of sites. One of the major aims of the strategy must be to foster local interest in sites of wildlife importance. General interest in nature conservation can be stimulated by organising competitions for the best wildlife gardens, best wildlife photographs and so on. The Council's programme of countryside walks and events could be expanded to attract more community interest. Interpretative material, already produced for some sites, could be produced for others, and for the Borough's wildlife in general. There are endless possibilities, but the Council may have to seek further contact with local communities to encourage their interest and involvement in ongoing projects.

For some sites, local people may provide a potential workforce for minor management tasks or volunteers for a wardening service and some groups, such as schools, may wish to adopt small areas to manage as their own nature reserves. These and other possibilities need further investigation.

4.4. SUMMARY OF RECOMMENDATIONS

Site Protection

To expand the current SSSI coverage as appropriate.
To pursue the designation of Local Nature Reserves where possible.
To recognise all sites of wildlife interest within the local plan and to draw up a series of policies to protect them.

Site Management

To ensure appropriate management of all wildlife sites in Council ownership.
To seek appropriate management of other sites through the agencies of persuasion and agreement.

Site Creation/Enhancement

To investigate possibilities for enhancing existing sites.
To investigate possibilities for creating new sites.
To establish a series of wildlife corridors.

Development of Public Interest and Involvement in Sites

To develop further public access to wildlife sites where appropriate.
To promote further interest in wildlife and nature conservation in Torbay.
To develop opportunities for the educational use of wildlife sites.

5 CONCLUSION

The Torbay wildlife survey has revealed the presence of an outstanding series of wildlife habitats scattered throughout the Borough. These include extensive areas of woodland and scrub, nationally important areas of species-rich grassland, a superb range of coastal habitats and many species with a nationally restricted distribution.

This overall wildlife resource within Torbay is remarkable and deserves recognition and promotion as one of the major attractions of the Borough. The abundance of these wildlife habitats has created a very high quality of urban environment - one that is fundamental to the success of Torbay as a thriving tourist resort.

TBC have shown their interest in nature conservation by their commitment to the wildlife survey, but much more needs to be done to ensure that Torbay's rich wildlife heritage is safeguarded for future generations. TBC should also recognise that investment in the protection, maintenance and enhancement of these outstanding wildlife habitats is investment in the continued economic health of the Borough and that it is important to maintain this attractive urban environment for the people that live and work in Torbay.

It is hoped that the Torbay Wildlife Survey will help to promote nature conservation as an integral component of the Seascape, Landscape and Townscape of the Borough of Torbay.

ACKNOWLEDGEMENTS

The cooperation of many land owners in permitting access to their land is gratefully acknowledged. In addition, the DWT would like to thank Joanna Redgwell for her voluntary assistance in the survey work, all the local naturalists who have contributed useful information and English Nature and the Royal Society for the Protection of Birds for their contributions to the survey. Finally, the DWT would particularly like to thank the staff of TBC's Arts and Recreation Department for their cooperation and support during the survey.

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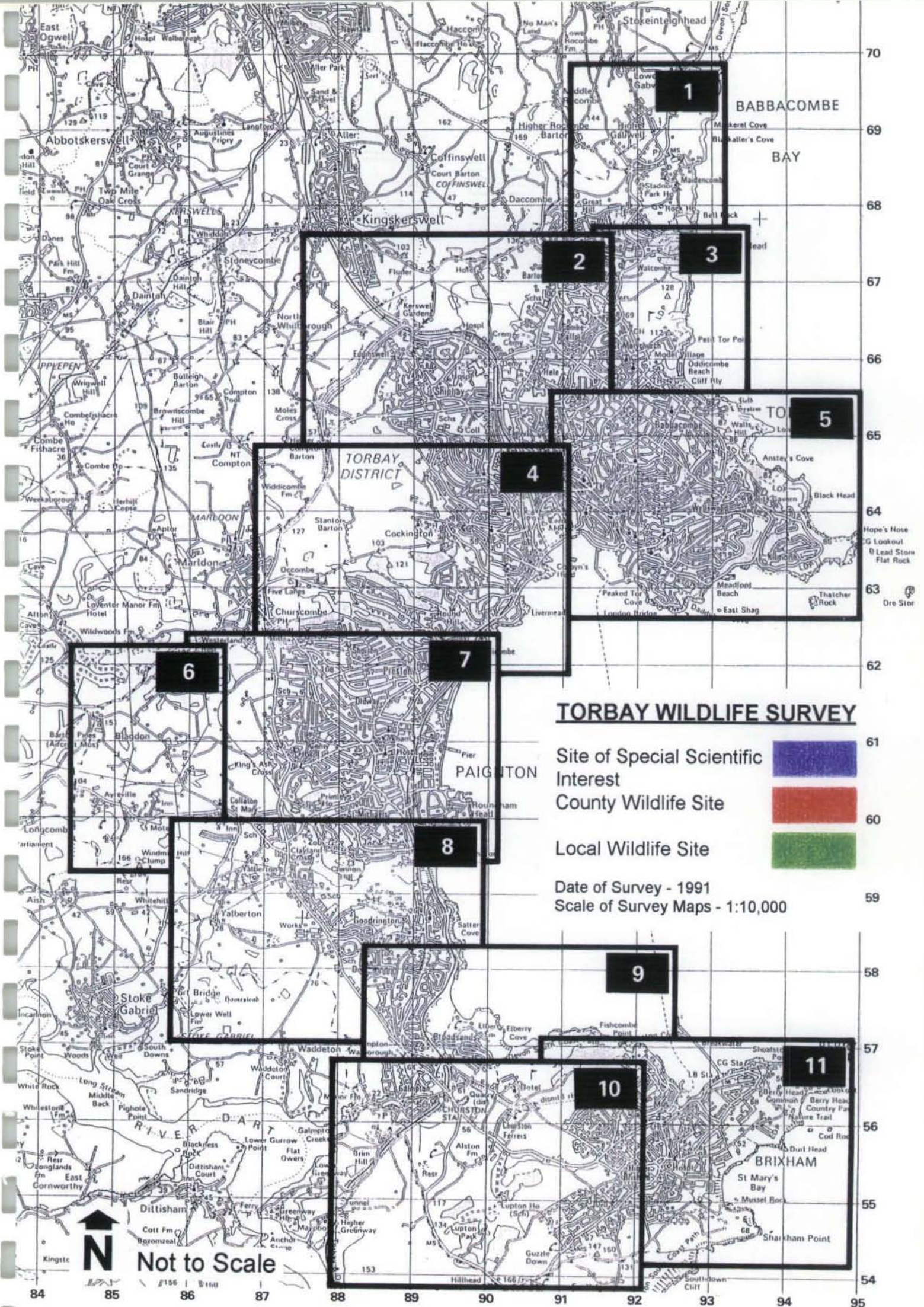
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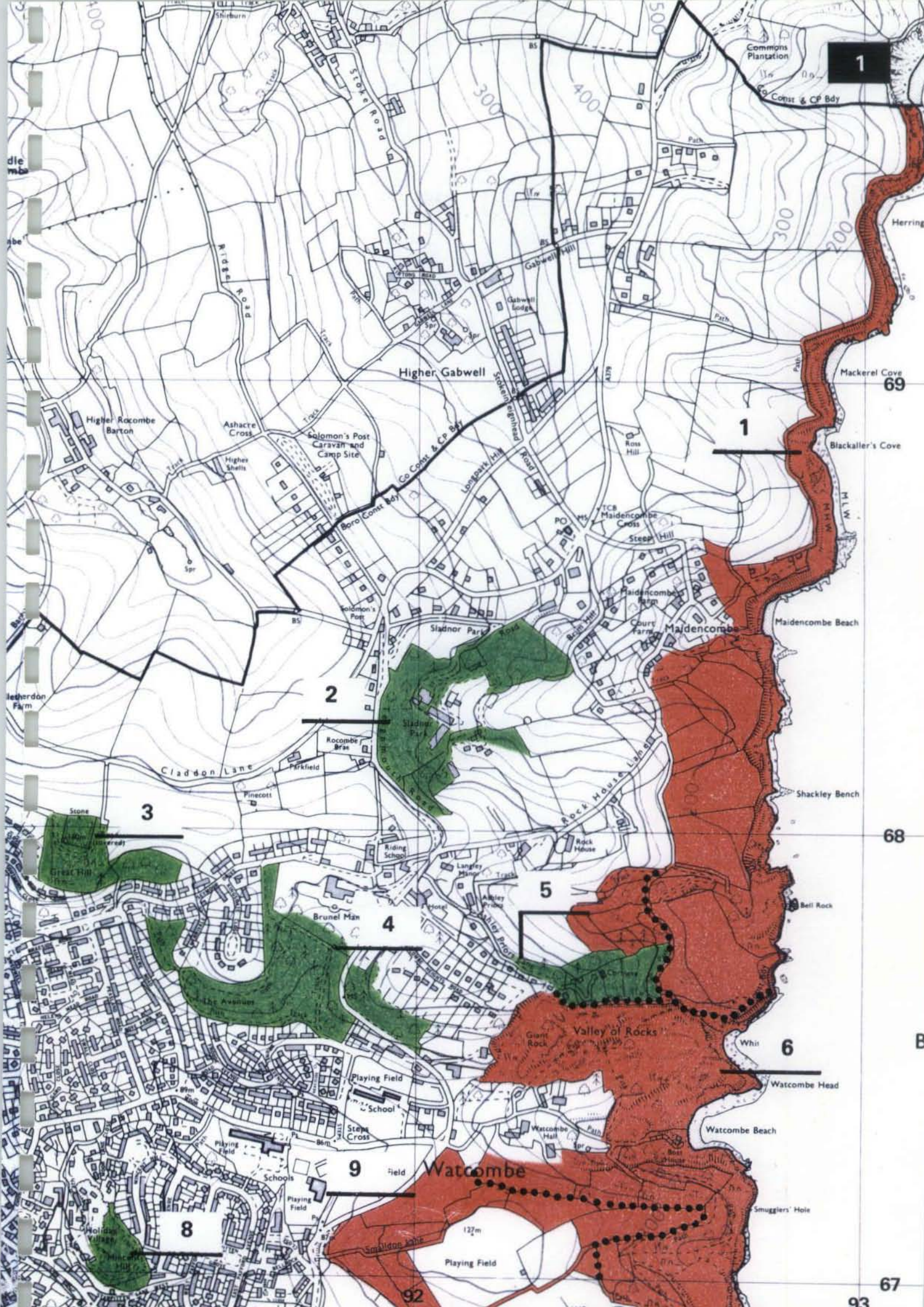


TORBAY WILDLIFE SURVEY

- Site of Special Scientific Interest 61
- County Wildlife Site 60
- Local Wildlife Site 60

Date of Survey - 1991
 Scale of Survey Maps - 1:10,000

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 Not to Scale



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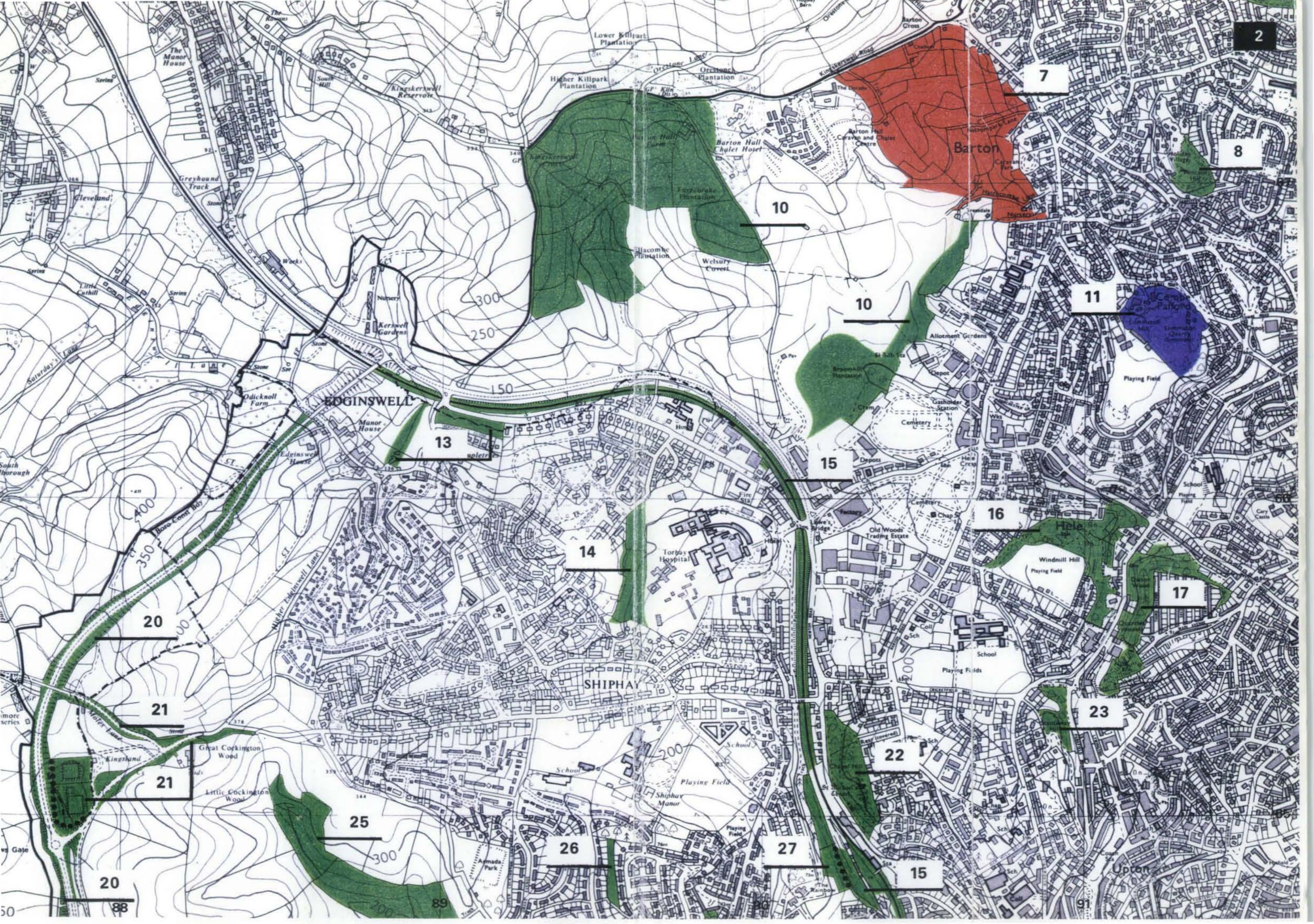
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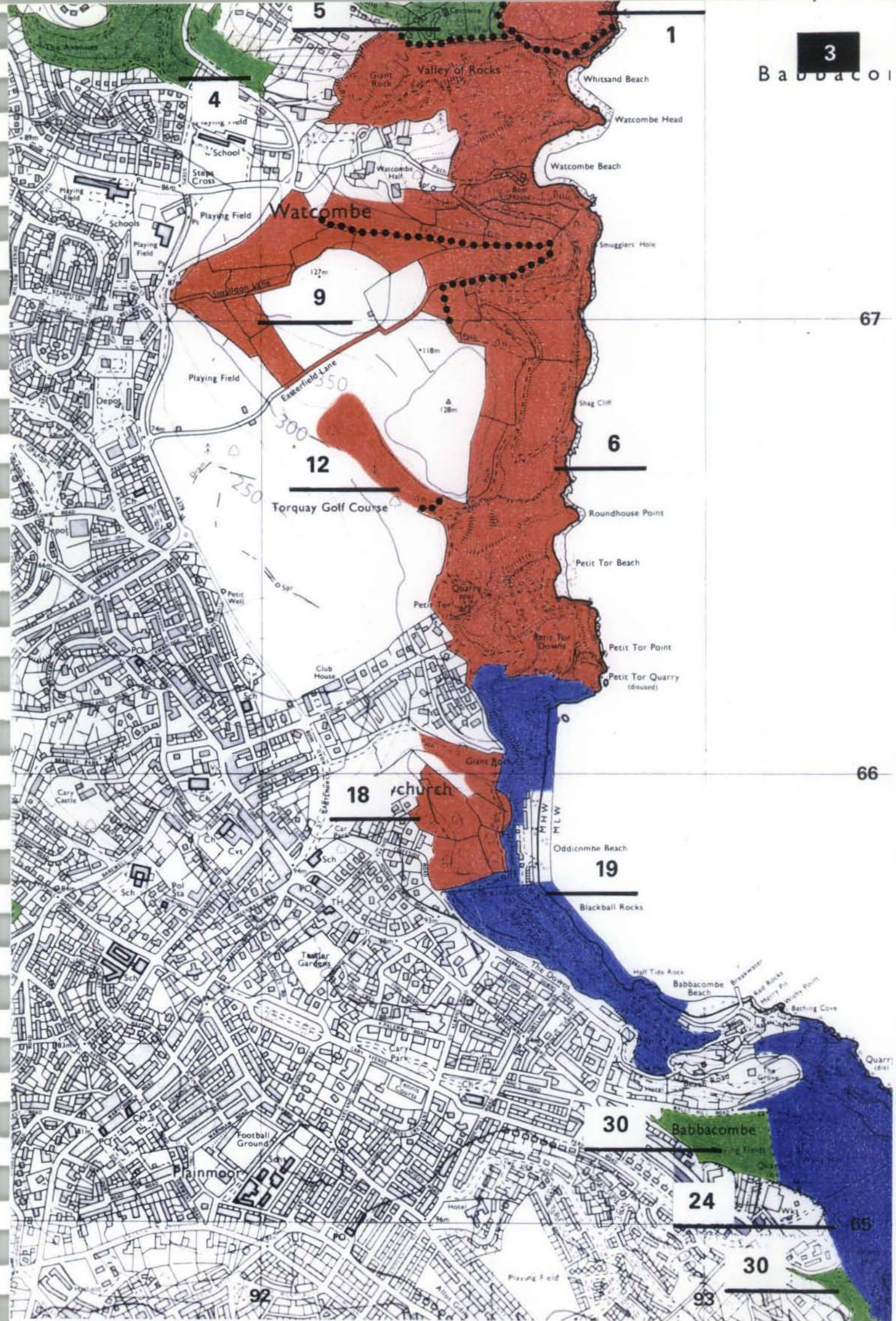
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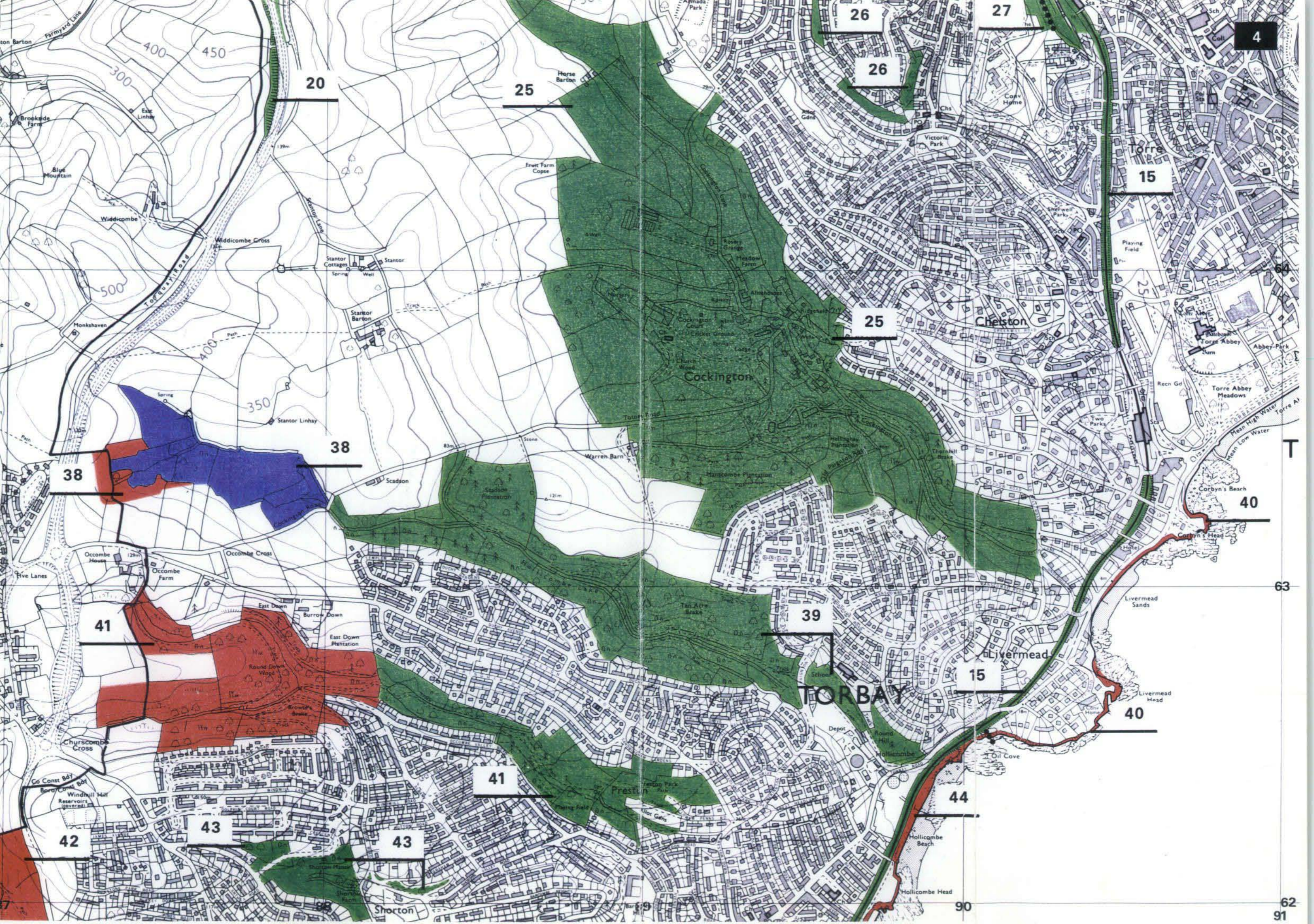
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Shorton

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119m 118m 117m

117m 116m 115m

115m 114m 113m

Stantor Cottages Spring Well

Stantor Barton

Stantor Linhay

Occombe House Occombe Cross

East Down Burrow Down

East Down Plantation

Churcomb Cross

Co Const bdy

Windmill Hill Reservoirs

Horse Barton

Fruit Farm Copse

Cockington

Warren Barn

Scadson

Stadson Plantation

Tan Acre Brake

Preston

Hot Gales

Victoria Park

Chelston

Chelston

Chelston

Chelston

Livermead

Livermead

Hollicombe

Hollicombe Beach

Torrey

Torrey

Torrey

Torrey

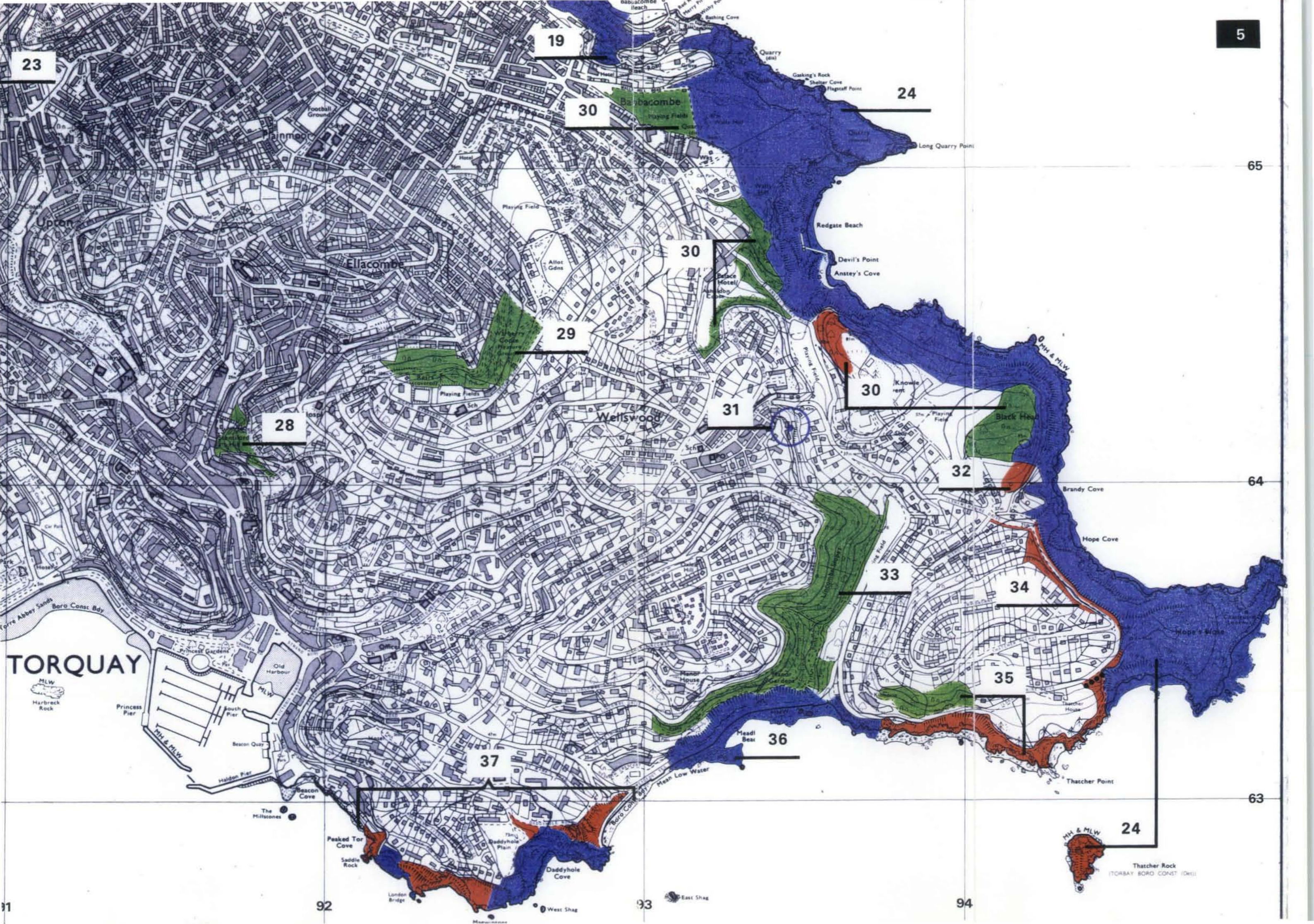
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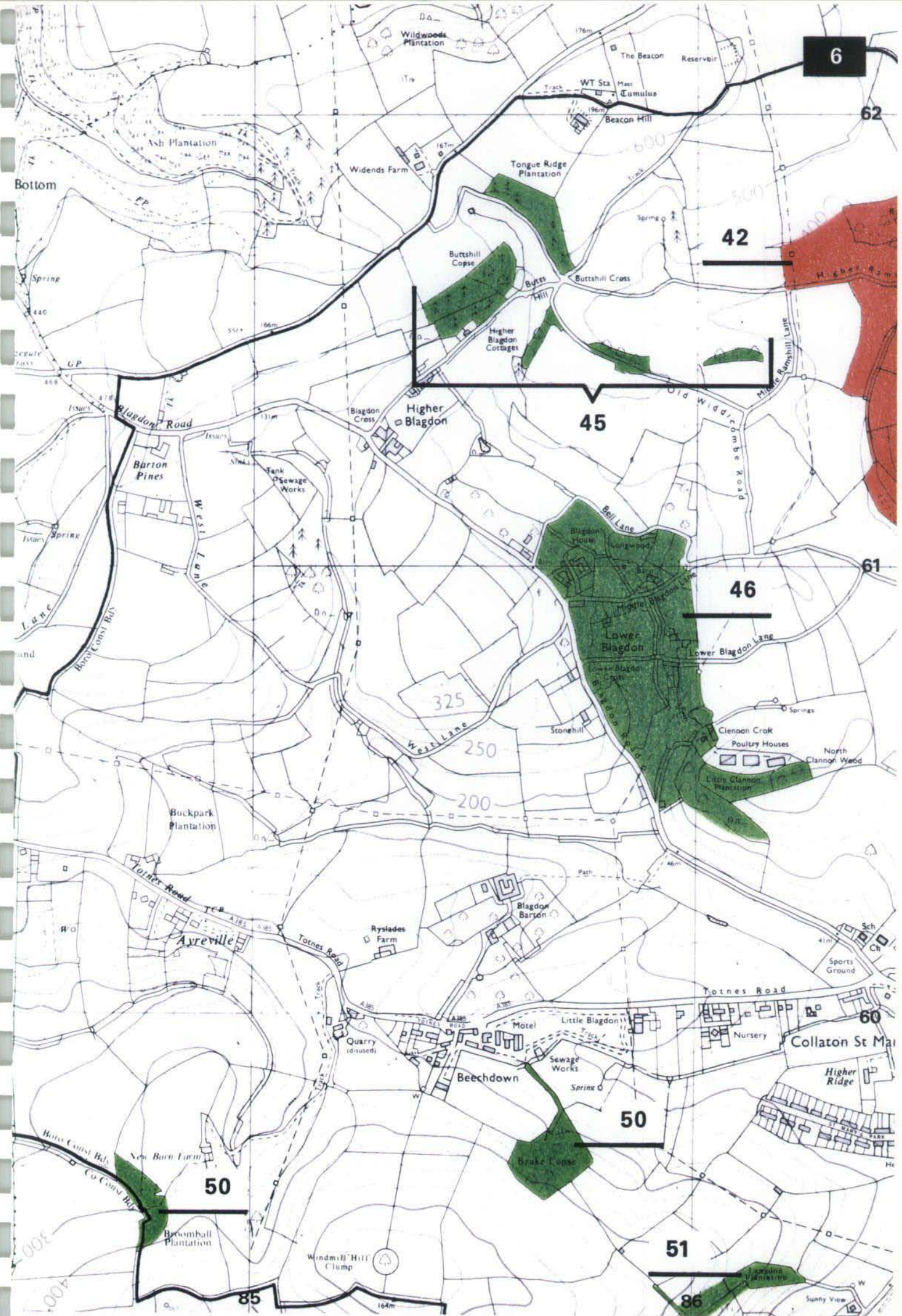
Livermead

Livermead

Hollicombe

Hollicombe





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Bottom

Wildwoods Plantation

(76m)

The Beacon Reservoir

WT Sta

Mass Cumulus

Beacon Hill

Ash Plantation

Widens Farm

Tongue Ridge Plantation

Buttshill Copse

Byres Hill

Buttshill Cross

Higher Blagdon Cottages

Higher Blagdon

Blagdon Cross

Barton Pines

Fank Sewage Works

Blagdon House

Northwood

Highgate Blagdon Lane

Lower Blagdon

Lower Blagdon Cross

Lower Blagdon Lane

Stonehill

Clennon Croft

Poultry Houses

North Clannon Wood

Little Clannon Plantation

Buckpark Plantation

Ryslades Farm

Blagdon Barton

Motel

Little Blagdon

Sewage Works

Spring

Beechdown

Sch

Ch

Sports Ground

Collaton St Mary

Higher Ridge

New Barn Farm

Windmill Hill Clump

Sunny View

Spring

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GP

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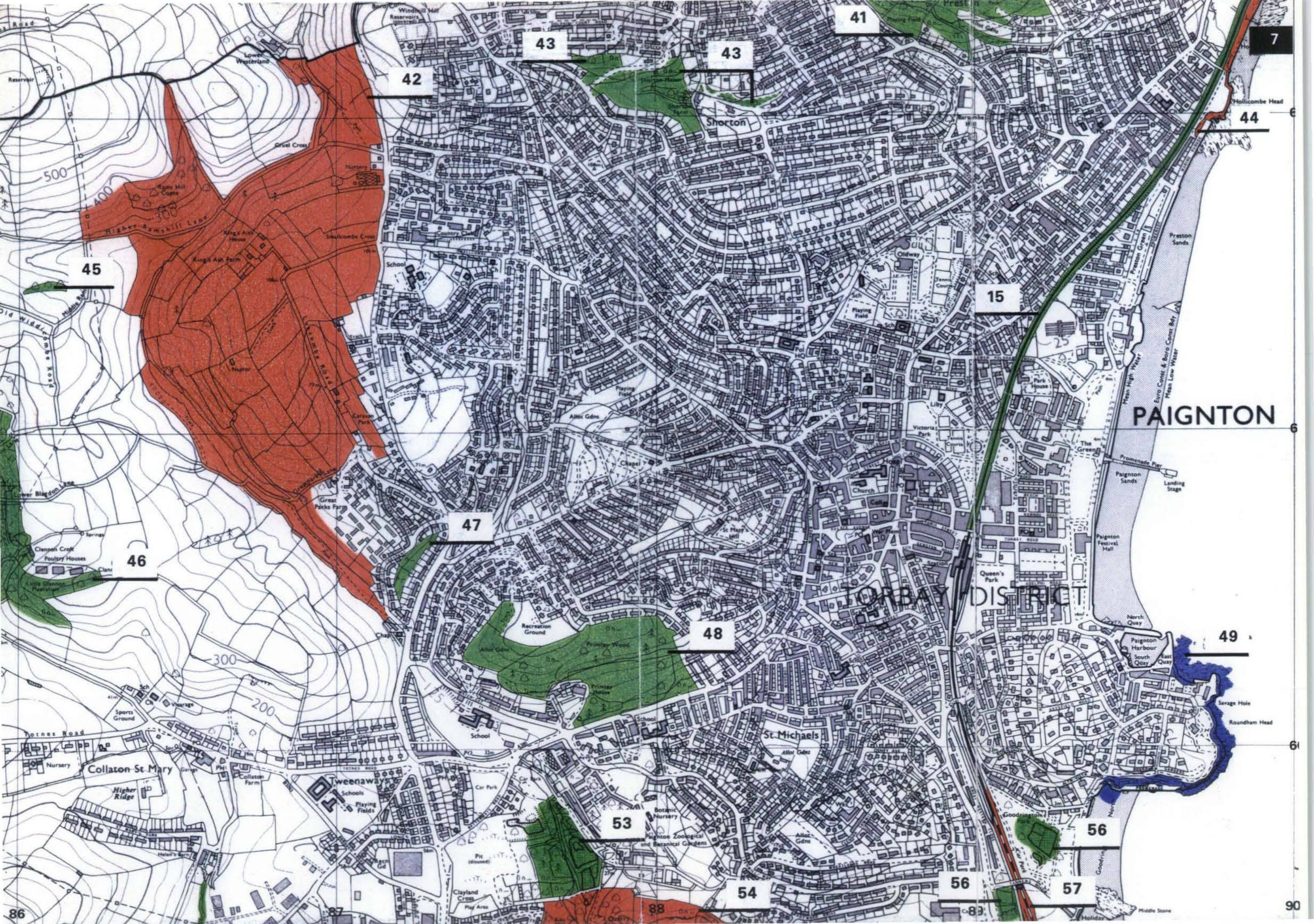
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PAIGNTON

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TORBAY DISTRICT

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Collaton St Mary

Tweenaways

St Michaels

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Paignton Zoological and Botanical Gardens

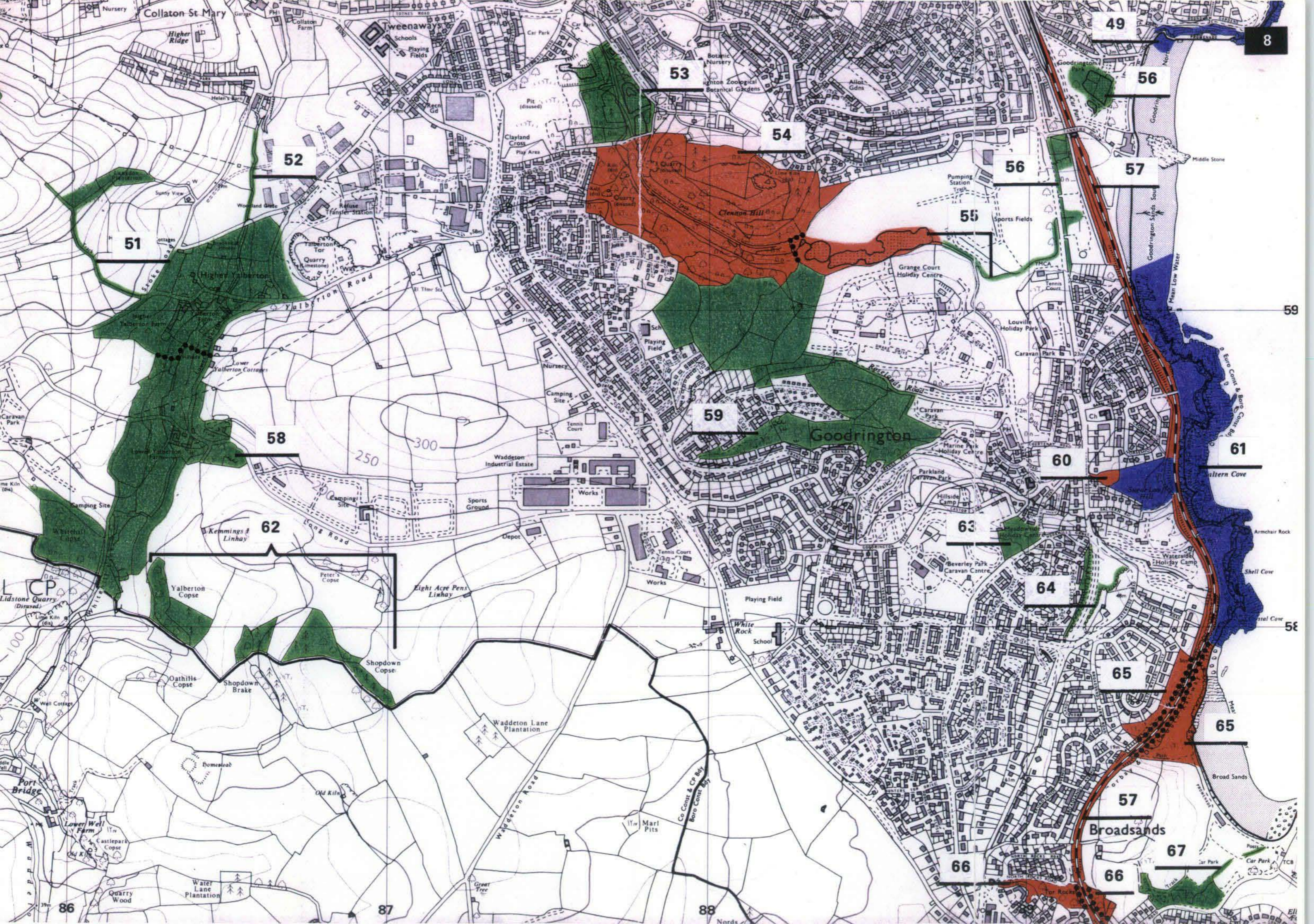
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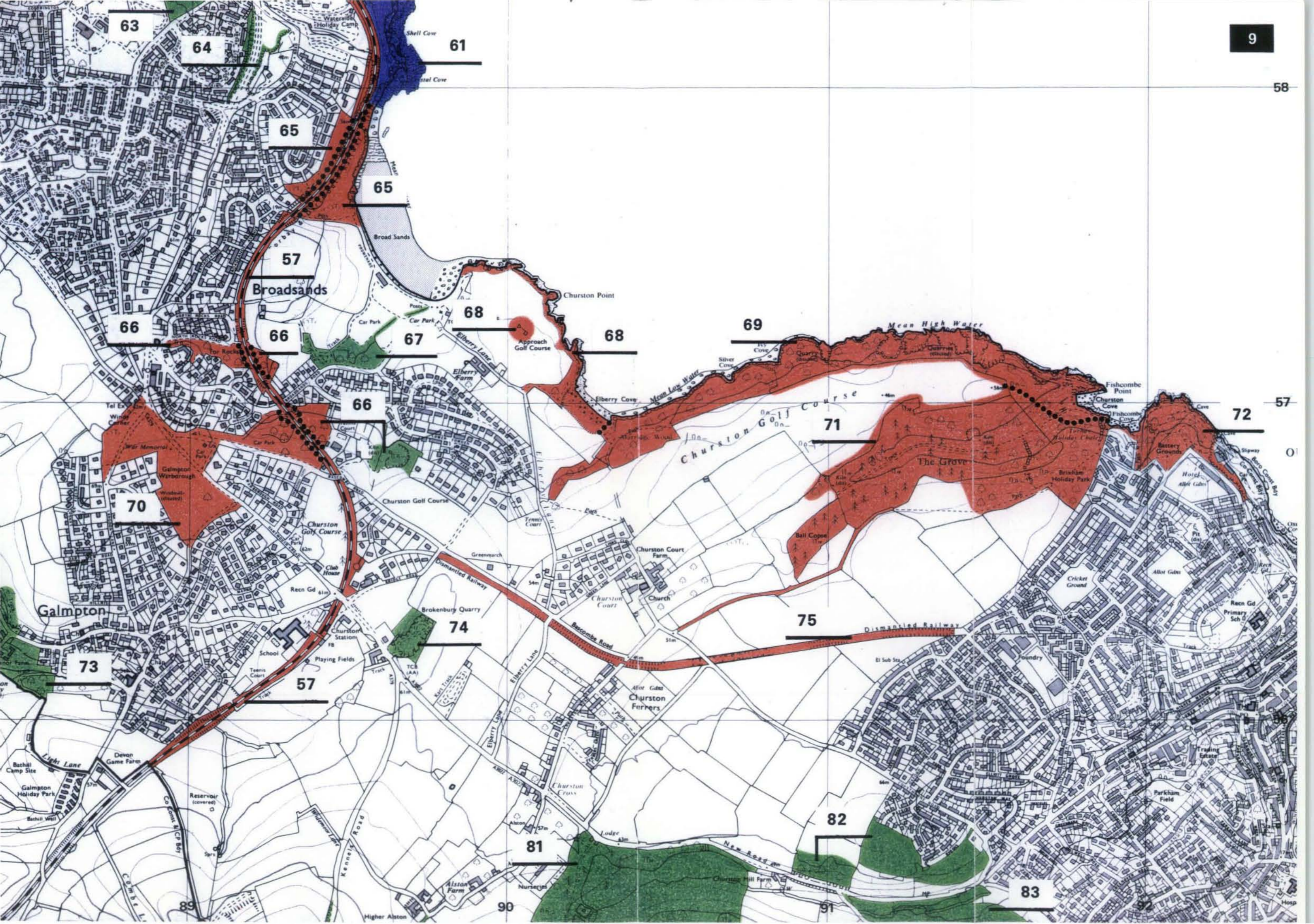
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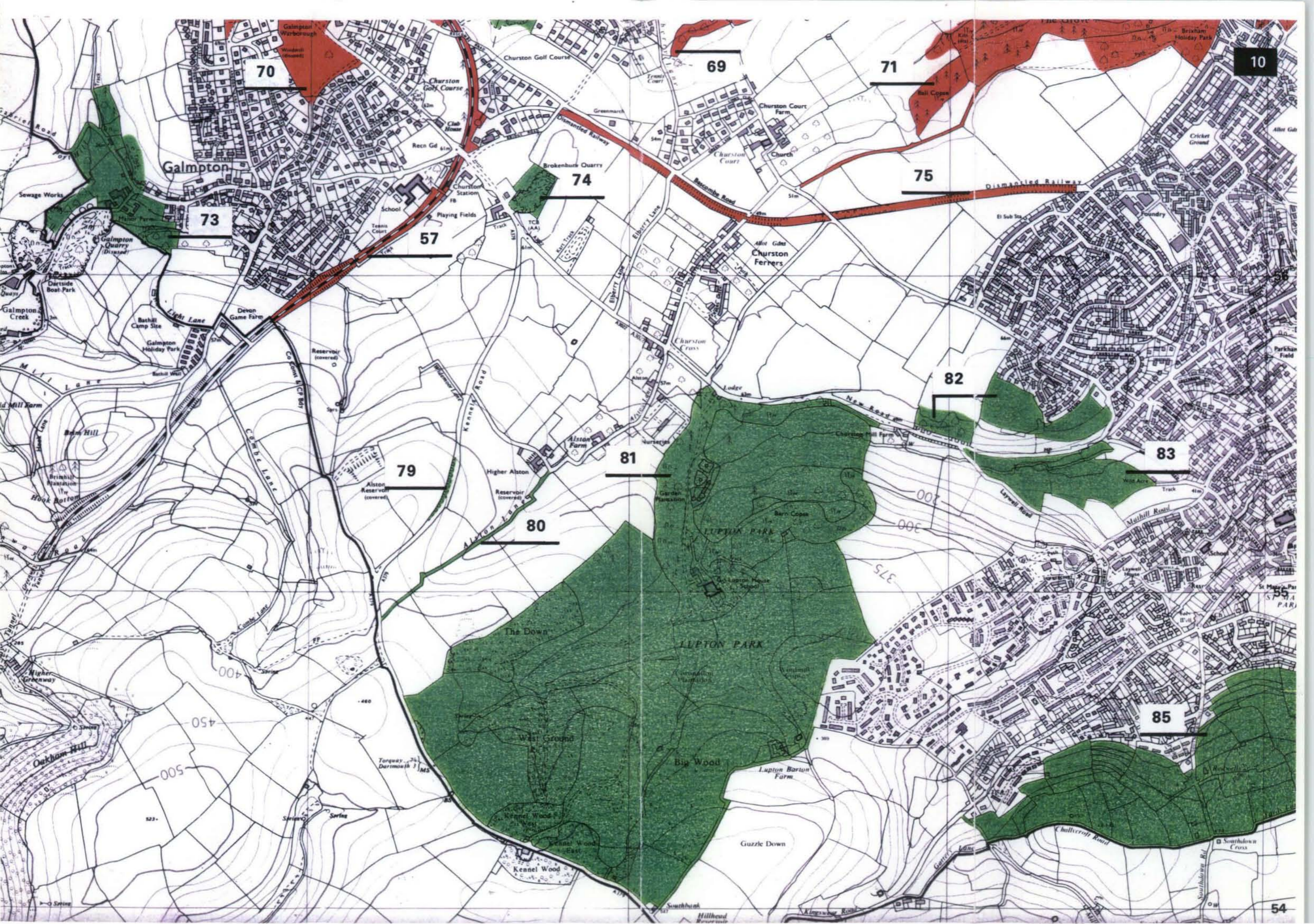
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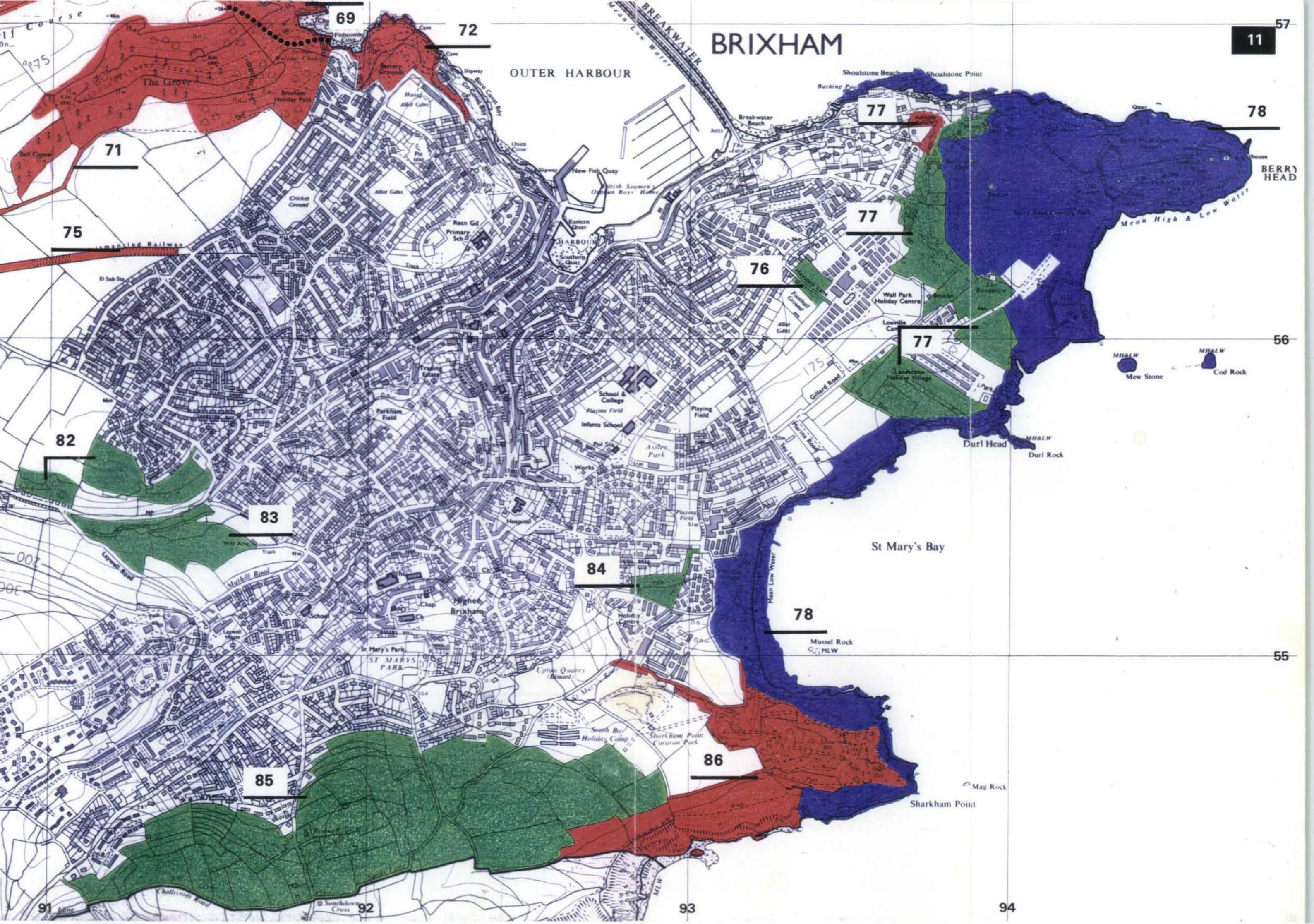
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BRIXHAM

OUTER HARBOUR

Shoalstone Beach Shoalstone Point

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BERRY HEAD

Mean High & Low Water

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MH&LW Mew Stone
MH&LW Cod Rock

Durl Head Durl Rock

St Mary's Bay

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Mussel Rock
MLW

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Mag Rock

Sharkham Point

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course

The Grove

Brixham Holiday Park

Remained Railway

Larwell Road

Wild Acres

Mathill Road

Challicroft Road

Southdown Cross

Fishcombe

Saunders

Cricket Ground

El Sub Sta

Parkham Field

St Mary's Park

Higher Brixham

South Bay Holiday Camp

Sharkham Point Caravan Park

Hotel Albert Gales

Reen Gd Primary Sch

Foundry

Trading Estate

Hospital

Upton Quarry (Disused)

St Mary's Bay

Sharkham Point

Mag Rock

Slipway

Over Cove

Reen Gd

Eastern Quay

Playing Field

Playing Field

Playing Field

Playing Field

Playing Field

New Fish Quay

British Seamen's Orphan Boys Home

Southern Quay

School & College

Works

Holiday Centre

Sharkham Point

Sharkham Point

Sharkham Point

Breakwater

Breakwater Beach

Wall Park Holiday Centre

Louville Camp

St Mary's Bay

St Mary's Bay

St Mary's Bay

St Mary's Bay

St Mary's Bay

Shoalstone Beach

Bathing Pool

Wall Park Holiday Centre

Louville Camp

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Wall Park Holiday Centre

Louville Camp

St Mary's Bay

St Mary's Bay

St Mary's Bay

St Mary's Bay

St Mary's Bay

Shoalstone Point

Quay

Wall Park Holiday Centre

Louville Camp

St Mary's Bay

St Mary's Bay

St Mary's Bay

St Mary's Bay

St Mary's Bay