

**Social Science and the Environment: New Cornish Studies and the Lizard.**

**MA Dissertation Cornish Studies TREM005**

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I certify that all material in this dissertation which is not my own work has been identified and that no material is included for which a degree has been previously conferred on me'.

Signed

Paul Simmons 28/06/2007

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### **Abstract.**

The landscape and biodiversity of the Lizard is unique not only to Cornwall but also to the United Kingdom. Historically, Cornwall has been exploited for its natural resources on land and in the sea and more contemporarily it has promoted and utilised its landscape for amenity value. Cornwall and specifically the Lizard have an environmental history of conservation, preservation and utility that contributes to a unique cultural identity.

There is not only an increasing global understanding of humanity's role in both the despoiling and stewardship of natural resources but also a movement away from the pure scientifically based Cartesian non-holistic view of nature. There has been an explosion in social scientific theories and methodologies promoting a more dualistic approach to environmental management. This dissertation promotes the idea that there are three main narratives that encapsulate the array of social scientific theories, which could enhance those methodologies that are used to develop land and biodiversity management strategies in Cornwall and specifically the Lizard. The narratives analysed in detail include first; the economic versus intrinsic value of biodiversity argument; second, an analysis of the growth of a multidisciplinary social scientific discourse that works in harmony with scientific quantitative disciplines; third, personal human relationships to, and interaction with, nature. A comparative study of all three narratives will be made in relation to present land and biodiversity management initiatives, specifically on the Lizard. Additionally, a global context is provided through an analysis of statutory and non-statutory agreements, strategies and initiatives at all spatial levels whilst a local perspective is promoted through interviews and questionnaires with various land managers on the Lizard.

This dissertation also promotes the idea that not only is there an academic contribution to be made through the multidisciplinary ethos of New Cornish Studies on environmental issues within the debates on tourism, land management and cultural identity but also that they need to reflect recent social scientific theories. The study of Cornwall's biodiversity in general has been based historically on scientific, quantitative analysis of habitats and land management. New Cornish Studies has engaged briefly with scientific analysis of Cornwall's biodiversity but even less on any debate of its socio economic meaning. An attempt is made to redress the balance by introducing the idea that Cornwall's biodiversity and land management cannot be looked at in isolation from the emerging global social scientific environmental rhetoric and that indeed there is a strong and large proactive audience of agencies and voluntary organisations and individuals that already successfully implement the variety of strategy plans who might also benefit from understanding a more theoretically based approach to biodiversity and land management.

## **Introduction**

In Cornwall, botanists like Reverend C A Johns and academics like J T Blight mirrored what started around the world as simple narratives of personal philosophical engagement with nature in the late 19th to mid 20th century by authors such as Emerson, Thoreau and Muir. Johns, Blight et al wrote about their discoveries of Cornwall's "natural productions" in "that part of our native land which stretches farthest into the great Atlantic" (Blight 1876:i). The rhetoric of individual engagement with Cornwall's unique physical landscape can be traced back to these times and probably earlier with John Ray in the 17<sup>th</sup> century and William Borlase in the mid 18<sup>th</sup> century. Globally, in the 20<sup>th</sup> century, Aldo Leopold's *A Sand County Almanac* in 1949 and Rachel Carson's *Silent Spring* in 1962 are often quoted as seminal works that were for many a catalyst on raising awareness of the human environmental relationship. In the past four decades there has been a growing awareness in the West that "issues of lifestyle and consumption were linked to environmental problems" (Soule and Press 1998:398). What evolved from the late 1960's was the global meta discourse of environmentalism or environmental studies (Soule and Press 1998:397). This was encapsulated in Hazel Henderson's universally recognised motto "Thinking globally, acting locally" (Henderson 1988:355).

One of the developing disciplines within this broad dialogue has been environmental history. "Environmental history is an attempt to unite the two worlds of science and history" (Oosthoek 2005:1). It has emerged from the direct consequence of environmental problems created by the human impact on the natural environment through such factors as farming, pollution and population pressures and analyses the history of human interaction with the environment with its interdisciplinary roots in ecology, geography, anthropology and archaeology (Oosthoek 1995:1). Whilst environmental history ventures into all human activities, ranging from economics to social organisation, politics, science, philosophy, and culture this has led to an "increasing disciplinary diversity" (Soule and Press 1998:397). However, a dilemma arises. Environmental studies can be split into two camps, the social critics and the empiric scientists (Soule and Press 1998:399). This inspires a dualistic methodological approach of both social and ecological science creating separate environmental

discourses whilst movements such as Greenpeace, Friends of the Earth and national Green Parties have evolved a socio political mechanism for debate and action in parallel.

This dissertation will investigate biodiversity and land management on the Lizard and Cornwall, specifically from the emergent social theoretical angle. Additionally, interviews with land managers working for the main actors of biodiversity and land management within the Lizard and the rest of Cornwall, namely Natural England and the National Trust have been undertaken and questionnaires sent out and received from the agencies mentioned in addition to Cornwall Wildlife Trust. The dissertation's overall aims include first, analysing the global environmental narratives that could lead to a new qualitative methodology that would benefit biodiversity and land management on the Lizard. Second, it will investigate the environmental history of the Lizard including an epistemological analysis of environmental studies in Cornwall. Finally, it explores how New Cornish Studies might benefit from engaging with the theories emerging from the recent global environmental social scientific discourse or the "New Ecology". However Cornwall's environmental strategy plans cannot be analysed in isolation. Like the global economy and its inevitable influence on the Cornish economy, it is necessary to analyse in depth how global, international and regional environmental initiatives and agreements frame much of the work done by local actors on biodiversity and land management. Thus a lengthy chapter is devoted to the many agreements and land designations that have an affect on Cornwall and the Lizard from international to local government and national agency strategies.

Scoones calls the emergent meta discourse of environmentalism New Ecology. As a broad definition it evaluates the "conceptual and methodological common ground" between the natural and social sciences looking at the "prospects for and challenges of new types of interdisciplinary interaction" (1999:480). One aim of the dissertation is to investigate whether this interaction is discernible, explicitly in relation to all aspects of "landscape conservation" within the "interdisciplinary debate" of New Cornish Studies (Payton 1995:1). The underlying theme of the dissertation is the confluence of the latest theoretical narratives in the global environmental discourse

and day-to-day management of environmental resources on the Lizard and the rest of Cornwall. This dissertation provides an opportunity for New Cornish Studies to reengage with the debates surrounding the physical landscape of Cornwall that Turk and Spalding contributed to just over a decade ago.

There are four reasons why it would be appropriate for New Cornish Studies to reengage with the environmental meta discourse. Firstly, environmental issues are already an increasingly dominant narrative within the tourist, economic and cultural debates. Secondly, much of the new social scientific theories and methodologies relating to nature, landscape and management emerging over the past twenty years would complement the already established and crucial scientific data measuring methodologies that help define Cornwall's biodiversity. Thirdly, re engaging with environmental issues would also complement the remit of New Cornish Studies to establish new social scientific theories on a variety of issues such as identity, landscape and community. Finally, the latest social scientific theories would not only contribute to setting up methodologies to measure intrinsic and economic value of the biodiversity that are central to the tourism and professional land management industries, but could also be used to set up methodologies to measure public perception on the landscape.

Whilst "environmental history could be the crossroad between the humanities and the natural sciences" (Oosthoek 2005:1), New Cornish Studies has been perceived as being "at the interface between the humanities and the social sciences" (Williams quoting Deacon 2002:68). "Environmental history links scientific reasoning with philosophical criticism; the physical world with the world of ideas" (Oosthoek 1999:1). This dissertation takes the opportunity not only to engage New Cornish Studies with the most recent environmental social scientific theories but also to investigate Cornwall's own environmental history.

## **Chapter 1: Environmental definitions and the physical landscape of Cornwall**

This brief chapter has two functions. Firstly, it introduces the problems that arise with language and how the perception of commonly used environmental phrases or words are easily misinterpreted from their original definition. Inevitably, they are difficult to define even by the professionals who utilise them and work within the so-called ‘environment’ industry. For example, it will be seen that the words ‘environment’ and ‘conservation’ not only become personally justified in their meanings by individuals but are also used ubiquitously and without consensus in the variety of strategy plans that are to be analysed. This chapter provides definitions of relevant commonly used phrases according to specific international agreements.

Secondly, it would be easy to assume that the uniqueness of Cornwall’s geology and climate compared to the rest of the United Kingdom is common knowledge. Indeed there is also a comparative uniqueness of the Lizard to the rest of Cornwall, which is not so commonly understood. The resultant inimitable biodiversity of the Lizard is a direct result of these formative and vital ingredients: geology and climate. For this reason a brief resume of the climate and geology of Cornwall and the Lizard’s geology and resultant biodiversity is provided. One of the aims of the dissertation is to analyse the environmental history of Cornwall and the Lizard. This chapter provides a temporal backdrop to the more recent environmental history.

### **Definitions**

Different constructions and representations of “nature” are employed for strategic purposes by a variety of interested parties for their own ends (Harrison and Burgess 1994:291). For example Healey and Shaw (1994:425) concluded that the word “environment” has been imbued with specific meaning to help impose actual policies and strategies in the British planning system. Accordingly, for this dissertation words and phrases will be taken from Article 2, *The Convention of Biological Diversity* 1992 except “sustainable development” which comes from *Our Common Future* by the World Commission on Environment and Development in 1987.

A glossary appears before the Bibliography that defines the scientific terms that appear in the dissertation. These include ‘sustainable use’, ‘biological diversity’, ‘habitat’, ‘ecosystem’, ‘genetic resources’ and ‘rhetoric’.

### **Cornwall’s landscape**

*Cornwall’s geology:-*

“Four hundred million years of turbulent geological history have led to the Cornwall of today” (Bristow 1996:1). Taking a line west of Torquay up to Minehead and extending west of the Scillies, a mountain range existed called the Cornubian Massif, which was originally created 350-290 million years ago. It is part of the European mountain building events called the Variscan Orogeny. The European Variscan Belt includes mountains in Portugal, Spain, Ireland, Pembrokeshire, France (Massif Central), Germany and the Czech Republic.

The Caledonian Orogeny, an older mountain building event to the north of Cornwall resulted in the sediments from its rivers being deposited south of the continent. Much of Cornwall is made up of the resulting sandstones, gritstones, mudstones, silt and shale that later underwent metamorphism in the form of much folding and faulting to create slates or “killas” (Stanier 1990:2-3). Extensive volcanic action between 290-270 mya intruded granites into the killas. With subsequent weathering and erosion of the Cornubian Massif an exposure of a backbone of granite extended from The Isles of Scilly, Ireland and Brittany through Lands End, Carnmenellis, Hensbarrow (St Austell) and Bodmin Moor to Dartmoor. Alteration of some of these granites created kaolinite or china clay (Stanier 1990:4) with tin and copper mineralisation resulting from the cooling of the granite. In more recent geological times Cornwall has been through many phases of land uplift, submergence by the advance of the ocean and glaciation. As an example of the result of these processes, the Lizard exists as a marine platform with a sunken river valley (ria) to its north at the Helford River. Cornwall’s “geological importance is confirmed by the fact that it has more mineralogical SSSI’s than any other British county” (Cornwall and Scilly Objective 1 SPD 2000:91).

*Lizard geology:-*

The Lizard rocks are reputedly much older, 600-500 mya (Cambrian) and have undergone metamorphism to form serpentinite, with later granite intrusions in Devonian times subsequently altered to form gabbro and basalt. The Lizard is also made up of the Meneague Breccia, which is a mixture of the identifiable Lizard rocks and the quartzites and limestones of Silurian and Ordovician periods, 500-400 mya (Stanier 1990:2). 400 million years ago, the Rheic Ocean disappeared when the southern Normannian Plate of Africa and Europe and the Northern Laurasian Plate of Asia and America collided together. 10kms down below the ocean, hot oceanic crust was being formed and due to the collision, it was pushed up to the surface trapped between the plates consisting of Devonian slates and other older rocks. After further faulting the result was the Ophiolite complex, where slices of the mantle and the Moho (the region between the mantle and the Earth's crust) were exposed alongside the Devonian slates and the Meneague Breccia. The result is termed an Ophiolite complex of which the Lizard complex is the best example in Britain. A fault line geologically delineating the Lizard complex stretches from Polurrian in the east to Porthallow in the west (Bristow 1996:68).

*Lizard/Cornwall climate:-*

Cornwall is 120 km long with no area being more than 25km from the sea. There are mild winters, cool summers with rainfall ranging from 750mm to 1800mm per year on the North Coast and Bodmin Moor respectively. The Maritime climate influenced by the Gulf Stream is characterised by prevailing westerly salt laden winds, often gale force for extensive periods, but with warm sheltered spots bearing sub tropical vegetation (Cornwall and Scilly Objective 1 SPD 2000:82).

The Lizard has no extremes of temperature enjoying the highest mean daily temperature of 11 degrees Celsius with the average in July and August at 19 degrees. Average rainfall is 40 inches per year. There is a general lack of trees with gales frequent and the salt laden moist and unpolluted air encourages lichens, mosses and ferns. A prolonged growing season and mild winters encourages much out of season crops and wild flowers. Like most places in Cornwall the Lizard has spent much time "totally submerged according to the rise and fall of the sea level". The flatness of the

Lizard, called a marine platform, is due to erosion of its surface during the Cenozoic Era (65mya-present). At the centre of the Lizard is the Heathland of Goonhilly Downs where the rivers originate and have cut into the valleys of Kynance, Caerthillian, Mullion, Poldhu and Gunwalloe on the West coast. The East coast is more undulating, wooded and sheltered. The highest points on the Peninsula are Roscruge Beacon near St Keverne 115m and Dry Tree on the Goonhilly Downs at 113m with the highest cliffs at Vellan Head south of Mullion at 71m (Lawman 1994:9).

*Biodiversity:-*

Cornwall's "unusually high diversity of habitats" is reflected in the high number of SAC's (Special Areas of Conservation) that the European government designated through part of the EC Habitats and Species Directive. The Lizard has "the richest biodiversity of any area in Britain" (Kerrier District Council 2002:3). Climate, geology and the longest mileage of coastline, around 450 miles, in the UK all contribute to the wealth of biodiversity.

The Lizard's biodiversity is markedly influenced by its unique geology of the Ophiolite complex, consisting mainly of the metamorphosed basic and ultrabasic rocks of serpentine, gabbro and schists and the resultant distribution and content of soils which "is often closely related to landform" (Staines 1984:51). Twelve main habitat types are identified on The Lizard, ranging from the coast, the plateau of the peninsula and the Helford estuarine system. Several of these habitats are of national or international importance (EN 1997:10). There are a range of semi-natural habitats supporting a high diversity of plants and animals. Over 250 species of national or international conservation importance are to be found many of which are restricted to The Lizard. Cornish Heath, (*Erica vagans*), although a rarity in a national context and indeed, elsewhere in Cornwall, remains locally abundant. Each county of England has a symbolic flower. *Erica vagans* is Cornwall's. The Lizard is home to nearly 75 nationally rare or scarce flowering plants with 200 species of lichen recorded from the serpentinite alone. Several nationally rare and scarce lichens, mosses, liverworts and ferns survive on the heathlands, grasslands and bare rocks of the coast and the broadleaved woodlands bordering the Helford Estuary (1997:11).

**Chapter 2: From global environmental rhetoric to proactive local biodiversity and land management.**

This chapter is an environmental historic snapshot of how biodiversity and land management works on the Lizard within a global context towards the end of the first decade of the 21<sup>st</sup> Century. To achieve this it is necessary to investigate, comprehensively, the present international and regional socio political agreements that exist which dictate environmental policy and strategies. Where necessary problems that arise are highlighted and comparisons of the strategies are made. Whether the local actors engaged in local biodiversity and land management take notice of the global and regional initiatives will also become apparent. There is a question of whether global initiatives are influential in the construction of local strategies in Cornwall. It will be shown that action does not necessarily stem from a trickle down effect but can also be initiated from the bottom upwards. Indeed local knowledge and expertise are critical factors contributing to successful Cornish biodiversity and land management.

The critical elements to be analysed include the important distinction between statutory and non statutory agreements and initiatives; a spatial analysis of the relevant agreements that affect the Lizard's and Cornwall's biodiversity and land management, from the global Convention on Biological Diversity (CBD) to the local Biodiversity Action Plan (BAP); the effects of different land designations from world heritage status to Kerrier Council land labels and finally the influence that the local agencies and main actors, namely Natural England, National Trust, the Cornwall Wildlife Trust and the RSPB have on implementation of strategy plans.

It is the aim of this chapter to analyse not only the output of environmental rhetoric within unilaterally agreed international statutory and non-statutory agreements but also the more regional and locally specific initiatives in order that any similarities between the regional and county strategies and their global counterparts will be identified. This chapter provides a spatial analysis of how rhetoric filters down to the local level and is, or not, as the case may be, utilised to formulate the aims, objectives and eventual implementation of biodiversity and land management strategy.

### **Global initiatives.**

Twenty years after the first global environment conference in Stockholm in 1972, the UN sought to help global Governments rethink their collective economic development and find ways to halt both the destruction of irreplaceable natural resources and pollution of the planet. The rhetoric from the United Nations Conference on Environment and Development (UNCED) in 1992, informally known as the Earth Summit was nothing less than a call for a transformation of every individual's attitudes and behaviour to the natural world. Only that would bring about the necessary changes.

Two of the Earth Summit's initiatives namely the Convention on Biological Diversity and the parts of Agenda 21, specifically Chapter 15 "Conservation of Biological Diversity", deal with conserving and managing the world's biodiversity and natural resources. They were agreed at the Rio Summit held in Rio de Janeiro between June 3<sup>rd</sup> and 14<sup>th</sup> 1992 and ratified (except by the United States) on a unilateral basis the following year. The CBD provides statutory powers of enforcement whereas Agenda 21 is a non statutory global, comprehensive programme "of integrated strategies" in all areas of sustainable development, designed "to halt and reverse the effects of environmental degradation and to promote environmentally sustainable development in all countries" (Robinson 1993:i). Much of the resultant strategy plans on all spatial levels have evolved from these two initiatives.

### **Convention on Biological Diversity.**

The CBD is a scientifically based global statutory agreement with its organising committee the Conference of the Parties (COP) made up of a mixture of scientists and environmental ministers. The CBD formalised the local Biodiversity Action Plans (BAPs), which function as the "modus operandi of sustainable development" (Evans 2004:270). Cornwall has its own BAP around which much of Cornwall's biodiversity and land management revolves.

Environmental concerns were once “a marginal fad” ignoring the economic needs of disadvantaged regions. Presently, there is more of a shift towards seeing the environment as part of “the right to quality of life” protected by statutory law such as the Convention on Biological Diversity. Yet whilst environmental management includes regulated partnerships in harmony with economic development involving government agencies, business, voluntary groups and individuals, some still see environmental measures as an economic constraint. Sustainable development as it presently stands is “enshrined in the Treaty on European Union” and acts as the mechanism and driver behind “economic and social cohesion” crucial to a successful European integration (EC 1996:3).

### **Agenda 21.**

Much of the world's land management and thereby its biodiversity management is through non-statutory agreements such as Agenda 21 and the resultant local agenda 21. For a local example Cornwall Wildlife Trust's Nature Conservation Sites are not protected by any statutory agreements. Change in attitudes towards the environment, if indeed there is to be any, is supposedly set from the top. Agenda 21 states that “responsibility for bringing about changes lies with Governments” in various partnerships on different scales (Robinson 1993:iii)

Agenda 21 is a very broad globally agreed economic and social document with wide ranging socio economic strategies to conserve and manage resources with mechanisms, both financial and institutional. On a regional context, there are a mixture of statutory and non-statutory plans based around the aims and objectives of Agenda 21, namely the South West Regional Spatial Strategy, Cornwall County Strategy and the Kerrier District Plan. Surprisingly, Cornwall County Council's acknowledgement of Agenda 21 is virtually non-existent with their website not updated since 2001. Its successor, the recently produced Sustainable Community Strategy is the latest instrument based on the global non-statutory agreements. In Cornwall, Agenda 21 seems to have slipped from the lips of the local authorities, agencies and more importantly the staff.

Smith and Pritchard made analysis in 1993 on behalf of the RSPB on non-statutory local authority conservation policies and strategies. Important as the results are, presently, the relevance of Agenda 21 might be seen as less important as the statutory initiative of the BAP. Environmental strategies are not seen as high priorities by local authorities but are seen as “valuable exercises” (1993:5). This seems to be the case for local government in Cornwall. Smith and Pritchard concluded that a growth in non-statutory strategies emanated from two sources. Firstly, from “political concern for the environment/ rather than legal compulsion” and secondly, through local implementation of Agenda 21 commitments (1993:4).

### **Comparisons of the CBD and Agenda 21.**

On a spatial level international agreements have to be broad in their remit, looking for consensus in policy to allow for diversity in cultural, economic and political ideologies. Whilst there is not only global diversity in people, cultures and ideologies but also unique and diverse ecosystems and habitats, a “prevailing growth orientated global development paradigm” exists which, it is argued by Rees, is incompatible with sustainable development (Rees 2003:39). It remains to be seen whether rhetoric to minimise environmental damage can be matched by action and indeed action that is relevant to local habitats and biodiversity. Agenda 21 and to some extent any global remedy remains a “blueprint” to be applied in principle worldwide. It is of no surprise that Cornwall’s embracing of Agenda 21, recently replaced with the Sustainable Community Strategies (CCC 2007) reflects the generalisation of the global rhetoric with arbitrary and non-specific aims, objectives and solutions.

Contrastingly, the CBD is more scientifically based, its core responsibility specifically aimed towards sustainable protection and utilisation of the world’s biodiversity. It has measurable targets and aims achievable through the establishment worldwide of BAPs. The efficiency and success of Cornwall’s BAP is not difficult to measure. The implementation of it can be analysed through historically established data collection methodologies, the establishment of numerous partnerships and the largesse of expert knowledge. All 120 partners and local actors of the Cornwall Biodiversity Initiative (CBI) are continually engaged with conservation issues revolving around the targets

of the BAP. There is an extensive knowledge base and a proactive corps of actors within the environmental movement. This has enabled the Cornwall BAP to be monitored and implemented to a great degree of success through different methodologies and partnerships. This repudiates the claim of “insufficient access to ecological expertise during drafting” at district authority level and cross departmental involvement within district authorities (Smith and Pritchard 1993:150) only because the expertise is there within the Cornwall BAP partnerships and not necessarily working within local government where Agenda 21 is administered.

Cornwall’s biodiversity and land management can be rated as a success due more to its local management infrastructure than any global influence. Its unique variety of habitats and species, abundance of specialised knowledge, interaction with the general public, importance to the economy through the tourism industry and historically efficient data gathering mechanisms have led to an informed understanding of the long term biodiversity and land management required in Cornwall. Possibly, Cornwall’s successful environmental approach heeds the executive secretary of the CBD, Ahmed Djoghlaif’s plea that “development requires rethinking current economic paradigms, and rejecting short-term, and ultimately empty, solutions” (CBD 2006:iv).

### **International and National Agreements.**

There is a Directive by which EC members meet their obligations. The Convention on the Conservation of European Wildlife and Natural Habitats known as the Bern Convention lists 788 endangered species and 189 threatened habitats evaluated through a European network of Sites of Community Importance (SCI’s) where member states are required to monitor and report on them every six years. The Directive also requires members to designate Special Areas of Conservation (SACs). Alongside Special Protection Areas, SAC’s form a Europe-wide network of protected areas known as Natura 2000 set up under the Habitats directive 1992 conserving 300 plants and 200 animal species. “Success of the Community’s new environmental policy depends, above all, on the quality of the action taken at national, regional and local level” (EC 1996:26). International designation of sites in Cornwall (15 SAC’s

(Special Areas of Conservation) and 2 SPA's (Special Protection Areas) ensures recognition in global terms of the importance of conservation by Cornwall for the benefit of Cornwall and the rest of the world. There is also recognition that biodiversity conservation does not exist in a vacuum.

The UK BAP is the national response to the CBD, with a commitment to protect the UK's biological resources through 162 local BAPs. Nationally, there are 391 species plans and 45 habitat plans compared to Cornwall's 127 and 25 respectively. Major reviews of the national plan and revised targets have been made since its inception in 1992, more recently in 2006. Implementation of policy, information and advice to partners of the BAP is achieved through partnerships of both statutory bodies such as DEFRA and Natural England and their equivalents in Scotland, Wales and Northern Ireland and non statutory bodies and NGO's such as regional Wildlife Trusts, the National Trust and RSPB. Co ordination of the various species, habitat and local action plans is through various standing committees and steering groups made up of representatives of the 1850 organisations that are involved in the decision making processes of the UK BAP. As well as having national priorities and targets, action must be taken at a local level. The Steering Group drew up a set of guidelines that were discussed with the Local Authority Association and the Local Government Board. In 1995 the UK Government published Biodiversity: the UK Action Plan, a document that listed national habitats and species of conservation concern, with detailed objectives and plans to protect, conserve and enhance them.

### **Regional and County.**

The South West Regional Assembly involving a partnership of local authority Councillors and agency representatives have produced the Draft Regional Spatial Strategy for the South West. All parties play a role in the region's economic, social and environmental well being. This strategy plan is meant to enhance the National and Cornwall BAPs resulting "in more resilient habitat units across the region" (SWRA 2006:148). Two anomalies arise. Firstly, any concrete environmental and biodiversity strategy implementation is almost impossible as "producing a strategic plan for the region is a real challenge given its geographic size and diversity, and special

environment” (2006:iii). Secondly, a regional strategy highlights the problems of affecting strategies at different spatial levels. There are coexisting but different area designations, methodologies and strategies for habitats. Indeed, international to local strategies operate autonomously, highlighting their own aims and objectives whilst at the same time recognising their common goals very often within co existing geographical boundaries. Those involved in the implementation of the variety of plans, as the questionnaire results indicate, find that any national or regional biodiversity strategy plan is too wide ranging to be effective on a habitat specific location and can only be used as either a general recommendation or template for a local strategy. The SWRA plan has its own methodology. It proposes, “a shift in emphasis from a site based approach towards the wider landscape scale” through a South West Nature Map produced by the South West Regional Biodiversity Partnership (2006:201). This works in contrast to the more local strategies such as the Kerrier District Plan by identifying and targeting regional habitats and species. It selects landscape scale blocks of land, known as Strategic Nature Areas (SNAs) to improve habitat networks and to sustain wildlife within them. This was achieved through regional consultation using the best available biodiversity data, local expert knowledge and the South West Wildlife Trust’s Rebuilding Biodiversity methodology. It remains to be seen whether those working on a local level can simultaneously plan according to the regional and national criteria especially where there are so many different land designations and indeed varying criteria for qualifying as a specific designation.

One important advantage of the regional over the local strategy plan is that funding under the Environmental Stewardship Scheme can be approved. Additionally, the larger national and regional strategy plans are better for coordinating projects such as climate change which is acknowledged in the SWRA plan (2006:201). However, local partnerships continue implementation of local plans whilst members often work simultaneously with differing aims and objectives within the multi levelled plans. Results from the questionnaire mark this out as an important problem to be worked through. Additionally, the regional plan notes that there is a constant requirement for the “protected and enhanced” environmental assets to be pooled together, to act as a key economic driver to attract investment (2006:143). ‘The Environment is a highly

valuable capital asset that should be managed intelligently for long-term economic benefit” (SWRA 2005:8). Environment as a capital asset is one common theme on all levels.

The Cornwall Biodiversity Initiative (CBI), a voluntary partnership of over 120 organizations, businesses, local authorities, government agencies, groups and individuals was set up to produce and deliver the Cornwall BAP. The objective has been to work together to protect and enhance Cornwall's wealth of wildlife and produce their work in three Volumes. Cornwall's BAP originated from the biodiversity and habitat audit contained within the first of the three volumes published in 1997. It included the definitive total of 25 habitats and 127 species. Each habitat and species is determined, assessed, monitored and then prescribed an individual plan of action. Relevant experts and lead partners have helped to produce the action plans with a twin aim of formulating action on each and every vulnerable species and habitat whilst providing information and raising public awareness on the various habitats and species that make up Cornwall's landscape. Those responsible for working towards the Actions in Cornwall's Biodiversity Volume 2 or Volume 3 act as either lead or potential partners. Integration of regional and national action plans is much more evident in Volume 3 (2004) where nationally recognised species and habitats that occur in Cornwall are highlighted.

The strengths of the Cornwall BAP are twofold. Firstly, in the original inventory of species and habitats obtained through local knowledge, partnerships and expertise. Secondly, the individual management plans within the BAP that enables the survival of all species are clear in aims, objectives, implementation and language. Furthermore, the BAP matches the CBD as a scientifically based initiative involving empiric gathering and analysis of data. Locally this is done either by the agencies involved as partners or by ERCCIS on behalf of the agencies. Overall, “Cornwall BAP Volume 3 will always be a working draft, describing work in progress” (CBI 2004:1). “The natural environment is only now becoming acknowledged as one of Cornwall's key economic assets, particularly in relation to tourism”. In response, one of the CBI's awareness action plans ensures “that biodiversity is fully recognised in economic programmes and spatial plans for the county”.

In 2007 Cornwall County council produced its own sustainable community strategy succeeding the 2003 initiative. It is a project with a twenty-year vision. “The agenda and targets set by Central Government for Local Government have developed relentlessly” with “a wealth of policies” challenging them to change how Local Government works within its wider partnerships. The Sustainable Community Strategy requires a rethink and to “focus on the big issues” whilst also providing “the overarching strategic framework for other thematic strategies” relating to the Local Area Agreement for Cornwall (CCC 2007:1). It can be argued that the aims of the new county vision mirrors the international initiatives where new strategies replace old strategies with longer term visions and goals inviting new partnerships providing no concrete timescales whilst trying to create policy integration between international and local players. Newly created designated areas in addition to co existing world, European and regional areas, such as the SW region nature maps, can only confuse the picture. At least locally, whilst there are co existing habitat designations in Cornwall and the Lizard, the Cornwall BAP has fixed boundaries with specific habitat and species plans.

The increasing infrastructure of Cornwall poses “threats as well as opportunities for wildlife” (CBI 2004:2). Local Development Frameworks in addition to statutory government targets for local and county councils for biodiversity conservation through the Local Public Service Agreement ensures not only that the County Council works with the CWT and other agencies but also includes “biodiversity recovery” in their overall management of the county. Here is acknowledgement of a prerequisite to “balance environmental, social and economic interests”. “Partnerships are developing and attitudes changing” (CBI 2004:3).

### **District and Lizard**

The Kerrier District Local Plan (KDLP) must be compliant with statutory national policies, planning policy guidelines and various Acts of Parliament. Indeed if it conflicts with current Government policy the Secretary of State may intervene to direct that changes be made (Kerrier District Council 2002:11). It follows that the

local plan's rhetoric must reflect this compliance and in relation to other spatial plans such as the Cornwall Structure Plan and the Regional Strategy for the South West. It follows that any interpretation and implementation may well be rigidly controlled and adhered to. Whilst this maybe true, the rhetoric utilised within these plans are vague and broad in their meaning. The regional plan admits that "it provides broad strategic guidance on Government policy" so it is inevitable that as opposed to the locally implemented BAP, local government policy will be equally broad in its remit.

Kerrier has its own European recognised SAC and various nationally recognised designations including AONB's (Areas of Outstanding National Beauty) and SSSI's. (Sites of Special Scientific Interest). West Lizard is a World Heritage Site whilst The Helford is a Natura 2000 site an area submitted by the government to the European Commission for the European Habitats Directive protection. CWT have Cornwall Nature Conservation Sites that are non statutory protected whilst Mineral Consultation Areas are controlled by Cornwall County Council. Finally, there are National Nature Reserves established by Natural England plus land that is leased much of which is SSSI. The latter includes 4000 acres out of 7000 acres (4000 as NNR) (2002:99).

Kerrier's 2002 District Plan states that the countryside requires "protection, conservation, enhancement and management" (KDC 2002:42). Yet the district is sub divided into "Landscape Character areas" which conserve their "local distinctiveness". This is encouraging in that land on such a small scale has specific designations. But whilst the district contains "a rich diversity of natural environment, variety of life and rural heritage", development "that would significantly harm the countryside, coast and natural environment/ will not be permitted unless the harm to the environment is outweighed by the benefits to the economic and social wellbeing of the community or the national importance of the development" (2002:45). This acknowledges two things. Firstly, there are "various pressures for development in the AONB" outside biophysical processes, "particularly from housing and tourism" which might harm "the fragility of the opened exposed nature of the landscape" (2002:46). Secondly, this illustrates how these "various pressures" are socio economic

elements which need to be included within the environmental decision making process in Cornwall. A global problem enacted in Kerrier.

With restricted land area, the “pressures for development” for Kerrier occur through the sheer variety of land designations and the amount of land involved. Designation of land includes localised areas such as AGLV, Areas of Great Landscape Values (landscape of countryside significance). They are presently outside the Lizard area but include Carnmenellis, St Gluvias, Tregonning and Godolphin Hill and Nancecuke but plans are for one around Gweek and Constantine. Areas of Great Scientific Value (AGSV) consist of buffers around conservation sites to prevent development. They act as links between wildlife sites to aid wildlife movement. The Helford River and Lizard are also AGSV’s. OALS, (Open Areas of Local Significance) have their own criteria surrounding local settlements and are landscapes in their own right of national/county significance. They are the areas of land between two villages, fingers between town and country both of which might give the village its best views of the countryside from within. One other designation, RIGS (Regionally Important Geological/Geomorphological Site) is of regional significance but not under legislation.

Analogous to the Regional Spatial Plan, the South Kerrier Alliance utilises environmental assets to attract investment (SKA 2006:17). Generally, when an individual environmental strategy plan focuses on the local level, the better the implementation is. This is true of the Alliance’s aims through proactive partnerships and specific projects by named companies, utility companies, agencies and landowners. Aims include encouraging all local farmers, growers and land managers to plant new woodlands and manage marginal farmland to maximise the potential for wildlife, aiming for 70% of farmed land to be in the Higher Level Environmental Stewardship Scheme whilst all SSSI’s are to be in favourable condition within five years (2006:20). The Alliance’s *raison d’être* is to ensure that the local natural environment is “used and valued as a resource for teaching and learning” about the environment, with an added aim of “promoting a local sustainable food economy and an eco-literate community”. “In the long term there will be a shift in our relationship with the natural world” (2006:19).

Nationally, English Nature's "*Strategy for the 1990s*" introduced yet another classification for a physical area, the Natural Areas approach. EN stressed that a Natural Area is not a designation. Its methodology was to interpret the distinctiveness of each part of England identifying their characteristic wildlife and natural features to define a "comprehensive series of Natural Areas". Physical boundaries were based on the distribution of wildlife and natural features and included the land use pattern and human history of each area. The aim was to create a more effective framework for planning and achievement of nature conservation by realising that wildlife is not restricted to designated and protected sites such as nature reserves or SSSIs. Biodiversity occurs throughout the countryside including built up areas of England. "No part of the country is without some wildlife interest" (1997:3).

The Lizard 1997 Natural Area Profile "identifies objectives which aim to integrate nature conservation into the existing land management practices" (English Nature 1997:6). It identifies the "special character" of the area ensuring that it is conserved for the future. This is achieved through partnership with agricultural, conservation and commercial bodies where integration of the variety of land uses can be achieved supporting local communities and other interested bodies (1997:6-7). It recognises key species and habitats creating 5 main objectives to be implemented. These are to retain existing geological features, maintain the diversity of and increasing heath land, enhance the rare habitats, maintain and enhance the rare species and finally promote public interest. Each objective has up to 19 key components or ways of attaining the individual objective. Although in Cornwall "historically, scientific monitoring strategies have not been good for NNR's" where exact numbers are not known, at least the specific habitats are. "BAP species are known more by areas than numbers" (NE Interview 2007). Local distinctiveness is the key, where nature conservation objectives are created particular to that area after a wide range of local consultations. A Natural Area is identified by its unique combination of physical attributes, wildlife, land use and culture. These features give a Natural Area a "sense of place" and a "distinctive nature conservation character which we can seek to sustain" (EN 1997:5). There is a call to all individuals and organizations with an interest in the future of The Lizard to be involved. "The Government can take a lead

and establish a framework but whether, in the end, we and our children enjoy a country which is richer or poorer in species and habitats depends on all of us” (1997:5).

### **Agencies, voluntary groups and academics’ views**

“Conceptually, a nature conservation strategy can be very close to fulfilling the requirements of an LA21 Action plan” (Smith and Pritchard 1993:46). Appropriately, the structures best suited to implementing the CBD’s directives have been the agencies armed with the best scientific and specialised local knowledge, those being the local “branches” of national bodies with the best scientific monitoring and implementing facilities. BAPs represent an important area of sustainable development, harnessing local expertise to create nature conservation across environmental, economic and social activities at the local level despite “ever-present tensions between the scientific and social goals of nature conservation” (Harrison and Davies 2002:96).

For the agencies, there are two stages that enable globally agreed initiatives to be successfully implemented on a local level. Firstly, there is a reliance on the higher levels of national bodies to have understood the global rhetoric and included the appropriate aims and objectives within its policy. National aims inevitably are to be implemented at local level. Both NT and NE have national strategies based on the rhetoric of Agenda 21 and the CBD. Local policy documents do not differentiate from where their policies have come from. There is implicit trust on a local level that the national policies meet the requirements of global rhetoric. What ensue are personal interpretations of the guidelines by agency wardens, which become a crucial element in the final work done (NT and NE interviews 2007). Any local management plans will be based on a mix of local expertise and knowledge and the guidelines and directives from higher management levels. The second stage includes understanding, analysing and providing for local individual habitats and species coordinated and agreed on at the local level through the many partnerships involved in biodiversity and land management. Personal interpretation of policy by management is a contributory factor, but the outcome must be an agreement reached by an array of

partners for those habitats and species within the CBI satisfying the requirements of the local BAP. For each species and habitat there is a designated lead partner and a number of criteria to be fulfilled. These include measuring species status, reasons for loss or decline, initiating objectives and targets and implementing action. This results in concrete action to satisfy the original objectives of the global statutory obligations of the CBD.

The National Trusts 1999 survey “Valuing our Environment” looks at the relationship between economics and the environment and the reliance of the SW economy on the natural environment. It will be seen that this issue of economic versus intrinsic value of biodiversity is one of the three main social scientific narratives that have emerged in recent times. The natural environment is good for “tourism and leisure spending” (NT 1999:3) and NT is a major generator of income and jobs. The importance for both the economy and the biodiversity of the SW is reflected in their management policies. Familiar rhetoric appears, proposing, “it is essential to find a balance between a healthy, vibrant, growing rural economy and conserving those things in our countryside that we all value so highly - the “quality of life” factors (1999:3). Taking a quantitative look at the importance of both the stewardship of the local environment and its relationship to the economy, the figures are convincing. Per year, 78% of all holiday trips to the South West are motivated by conserved landscape made up of 12.6 million holiday trips lasting 67 million nights with a visitor spend of £2,354 million. □□ It is estimated that landscape motivated holiday trips to the South West support 97,200 actual jobs representing 43% of the estimated 225,000 actual jobs dependent on tourism in the South West (1999:5).

Natural England (resulting from the amalgamation of English Nature, the Rural Development Service and the Landscape, Access and Recreation department of the Countryside Agency in October 2006) is the government agency responsible for delivering the government’s environmental land management programmes. It is a matter for conjecture whether they will “not always agree with the Government, other authorities or our partners” (NE 2006:9). Whilst its aims are to “conserve and enhance” the natural environment, interestingly there is mention of the need to achieve this “for its intrinsic value” as much as “the wellbeing and enjoyment of

people”. Inevitably there is the “economic prosperity that it brings” (2006:2) and the “partnerships/ at the heart of our work to connect people with the natural environment” (2006:5). Natural England acknowledges both its European responsibilities where its strategies coincide with the forthcoming European Rural Development Programming Period, running from 2007-2013, and the work done at ground level by the range of volunteer groups, countrywide. From the latter group, Natural England endeavours “to learn from their experience and identify ways in which we can contribute to mutually agreed objectives” (2006:5). Perhaps it sees itself on an independent level between the statutory and non-statutory players in environmental conservation on all spatial levels.

Natural England sets empiric targets and objectives nationally, as developers, implementers and advisors of new programmes and initiatives many of which are statutory. In the annual report 2005-6, the last as English Nature, rhetoric emphasises results. In the reports by the Chief Executive Dr Andy Brown and Mike Moser acting Chair, the government targets 95% of SSSI’s to be in recovered condition by 2010 which presently stands at 72%. “The need to integrate biodiversity and geodiversity in all planning considerations” is a now familiar generic prerequisite (EN 2006:2). Positive results have also been achieved for the BAP priority species and habitats that English Nature leads on. Of these, 8 of the 15 habitats and 43 of the 88 species are now stable or increasing, these numbers “representing a very significant improvement on those of the last reporting round in 2002” (2006:4). However echoing the long termism of many international initiatives, “English Nature, in partnership with the RSPB, The Wildlife Trusts and the Environment Agency, is developing a 50-year vision for water and wetland biodiversity in England” (2006:49).

Whilst the RSPB (Royal Society for the Protection of Birds) remain what is in essence a single issue group they have a very broad involvement in environmental issues, taking the lead in many nature conservation strategies. Sometimes it is easy to forget that birds inhabit virtually all known habitats, many of which are subject to natural and human induced pressures. With over 1 million members in the UK their strength, success and appeal to a broad range of people could be down to their understanding of the complexity of environmental management especially in the non-statutory arena.

Action plans and strategies get bad press as “verbiage rather than visible change” said the Chairman of the RSPB, Graham Wynne (Smith and Pritchard 1993:3). “A particular area of flux is the relationship between statutory and non statutory policy making at local level”. Changes in laws and plans “leave many bewildered as to the correct home for expressions of intent on nature conversation” Yet for Cornwall, he continues, “the success story is the chough on the Lizard” (1993:3).

### **Chapter 3: Perceptions of the environment.**

#### **Cartesian methodologies- Nature defined by building blocks.**

There is a long and continuous history of understanding the mechanisms of nature's ecosystems through empirical research and analysis. The resultant data relating to ecosystem construction, interaction, cause and effect have been utilised in forming biodiversity management plans at all spatial scales. "We need to understand ecosystems, that job will never be complete". Meanwhile, "management continues" (Lautenschlager 1998:181). The thrust of this dissertation is to discover how modern social scientific methodologies are being implemented in conjunction with the empirical data in land management in Cornwall, specifically on the Lizard. This section acts more as a historic comparison rather than an in depth look at empirical methodologies. However it is still vital "to identify relevant scientific issues and explain the importance of those issues within the decision making process" (Dale et al 2000:664).

One ubiquitous factor pervades the global environmental discourse, "the scientific data available is fragmented and the (biophysical) processes are still not fully understood (EC 1996:4). Generally, in the past the empirical, reductionist understanding of nature has been the primary way of analysing nature. The systemic thinking behind the concept of ecosystems has predominantly been of complex yet stable flows of energy and nutrients contributing to or indeed framing a stable relationship, which exists between species and locale (Scoones 1999:482). This has led to a framing of issues that has tended to ignore elements of dynamics and variability across time and space, often excluding from the analysis the key themes of "uncertainty, dynamics and history" (1999:480). This results in a more scientifically based management plan culture. The dissertation is attempting to add a holistic dimension to the discourse on environmental issues, namely analysing the missing themes and elements referred to that are the core subject matter of the emergent multidisciplinary social scientific theories. These theories will be analysed in chapters four to six. It will be seen that some have already, perhaps unwittingly, been utilised within the many strategy management plans on Cornwall's land and biodiversity.

Many of the international initiatives are based on empirical, scientific reports such as the Millenium Ecosystem Assessment. It acknowledges that the human species is fundamentally dependent on the flow of ecosystem services (2005:v). Ecosystem services are the benefits people obtain from ecosystems. These include provisioning services such as food, water, and energy, regulating services that affect climate, disease and water quality and interestingly the more qualitative cultural services that provide recreational, aesthetic, and spiritual benefits in addition to the quantitatively measurable supporting services such as soil formation, photosynthesis, and nutrient cycling. Briefly, the MEA acknowledges three main problems associated with management of the world's ecosystems. Firstly, 15 out of 24 of the ecosystem services examined are being degraded or used unsustainably as a consequence of actions taken to increase the supply of other services, such as food, energy and consumables. Secondly, evidence points to the increasing likelihood of irreversible changes in most ecosystems. Thirdly, the poor bear the worst consequences of any ecosystems failure to deliver services (2005:1-2). "The human species, while buffered against environmental changes by culture and technology, is fundamentally dependent on the flow of ecosystem services" (MEA 2005:v). This acknowledgement of human dependence on ecosystems is more important to a county like Cornwall through its reliance on the amenity value of the landscape and inevitably the physical environments contribution to maintaining a strong economy.

Presently, scientific analysis and understanding of the mechanics of the natural world continues unabated. A holistic approach to the environment has only developed in the past forty years with a more interdisciplinary social scientific approach. Themes of dynamics, variability across time and space, uncertainty and history have attracted much interdisciplinary debate and theory leading to new approaches and perspectives for defining ecology beyond the equilibrium balance of nature paradigm. As a warning, "a selective view of ecological issues results in a partial and limited social analysis. This in turn may result in the exclusion of certain perspectives on ecological-social interactions that might be derived from alternative readings of ecological and social theory" (Scoones 1999:480). This is a call for all disparate views of human-environment interactions and the resultant social implications to be expressed within

the new ecological discourse. This would lead to a more inclusive understanding of environmental issues beyond the “limiting balance of nature view” (Scoones 1999:480). Scoones’ rhetoric of the importance of including social analysis within the many areas of the environmental discourse was a major motivation for the dissertation. It could also be seen as an opportunity for New Cornish Studies to contribute to the contemporary narratives on some of the important issues relating to Cornwall’s physical landscape, namely the issues of tourism, culture and identity. If land management had up until now been based on purely empirical quantitative data and scientific theory, here was an opportunity for qualitative social theory to make a contribution to important Cornish issues related to the physical environment. What better vehicle than through the academic stewardship of the Institute of Cornish Studies.

Conceptually, one of the aims of this dissertation was to find out whether those working on land management in Cornwall had scientific or social scientific backgrounds, as an overall percentage. The theory being that those actors monitoring biodiversity and land management of contemporary Cornwall, but specifically the Lizard, were versed in the more qualitative sectors of New Ecology. Unfortunately this information has not come to light due to a small response to the questionnaires. However, from the interviews it is apparent that there is as much importance attached to understanding personal, social and cultural interaction with the life support systems that humanity ultimately relies on as there is in improving knowledge of the mechanics and relationships within and between ecosystems. For Cornwall, ERCCIS do have extensive empirical records for the whole of Cornwall and the Scilly Isles on the biodiversity and habitats of Cornwall. Additionally, the high numbers of partners contributing to the Cornwall BAP which include voluntary groups that monitor individual species or species sets suggest that there is a healthy contribution of scientific data to the decision making process of land and biodiversity management. Unfortunately, presently, a boundless resource of environmental social scientific literature on the Cornish perspective to its natural assets is absent.

### **Emergent social scientific methodologies**

The acknowledgement of the dual empirical and social theoretical global approaches to the study of environmentalism could possibly be explained as humanity's increasing need "to explore the philosophy of nature than to provide answers" (Oates 2006:89). It is debateable whether the ever-expanding multidisciplinary environmental studies have become "a social movement anchored in academia" (Soule and Press 1998:397), but what remains certain is that historically the discourse has been rooted in understanding the hard science behind environmental problems. Only recently has there been a growth in awareness and a subsequent analysis of the "profound consequences for society and nature". This has been achieved over the past forty years through the growing understanding of a web of economic, social, political and ecological relationships. One strand of this growing awareness and subsequent study of human impact on the environment has been through analysis of the interrelationships between global biophysical processes and human global commerce, which have resultant "environmental and social impacts" (1998:398). This narrative will be analysed in more detail in chapter 4 exploring the debate of intrinsic and economic value of biodiversity. As Cornwall relies more and more on its physical environment economically and culturally this argument is extremely relevant.

The canon of environmental literature though not global in its personnel or universally accredited would include such authors as E F Schumacher, James Lovelock, Fritjof Capra, Herman Daly, Paul Hawken, Hazel Henderson and Vandana Shiva. The content is an integration of ecological science, economics and social theory. In the 1990's a "global canon of writers" have contributed through professional societies and academic institutions a "phenomenal" output of environmental literature and criticism under a more formal title of "ecocriticism" (Slaymaker 2001:129). Ecocriticism has integrated pure applied science with the emerging social scientific "new ecology", namely finding "the common ground" between natural and social sciences (Scoones 1999:480). Nationally, Healy and Shaw have noticed that the UK discourse has evolved from "the environment as setting" to a polarised argument of viewing environmental care as mutually exclusive to its marketable assets. They conclude that "economic and material policy preoccupations" have prevailed and that

this will be the fate of “the environmental sustainability agenda” (Healy and Shaw 1994:425).

The Rio agreement signed in 1992 acknowledges the negative effects of the interrelationship between human activity and the natural world. It emphasises that economic and social progress depends critically on the preservation of the natural resource base with effective measures to prevent environmental degradation. This is the essence of the paradigm of sustainable development where provision of the needs of the present world community does not compromise “the ability of future generations to meet their own needs” (UNGA 1992:1). Yet for some, sustainability remains “a philosophical goal” which “provides neither destination nor direction” (Lautenschlager 1998:176). Principle 4 of the Rio Agreement states that “in order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it” (UNGA 1992:1). The need for social change has encouraged a social scientific discursive analysis of the relationship between humanity and the physical world. Environmental studies, “as a field is virtually limitless” (Soule 1998:398).

Reverend Johns, Blight, and Stockdale recorded Cornwall’s analogous narratives of nature in the 19<sup>th</sup> Century, where the journey became as important as the discoveries. More recently there are more empiric accounts of the biodiversity of Cornwall whether in Cornish Studies 1 series or in the output of the various agencies such as the Wildlife Trust and English Nature who have recorded in scientific diligence the biodiversity as part of their *raison d’etre*. Yet, two articles in the second series of Cornish Studies from Turk and Spalding invite a qualitative analysis of the significance and importance of various aspects of Cornish Natural History, an early example of the emergence of the global human environmental narrative within Cornwall. It is interesting to debate whether Cornwall has ever had its own Thoreau, Leopold or Carson in Johns, Turk or Spalding.

**Holism- Man as a part of, as opposed to apart from, nature- modern social scientific methodologies.**

The main focus of this dissertation surrounds the discovery of three major themes of environmental social theory. Questions arise as to whether they have already been influential in the management of biodiversity and land in Cornwall, specifically the Lizard and whether new methodologies within the emergent theories could be devised and incorporated into biodiversity and land management practices. The key evidence of the dissertation revolves around three major lines of enquiry and their associated theories. These will be discussed here briefly and in detail in chapters' four to six.

Firstly, there is a narrative of an intrinsic value versus economic value to biodiversity, where social scientists, ecologists and economists continually debate the mechanisms to measure biodiversity. Crucially, Clark asserts that the WCED (World Commission on Environment and Development) claimed that economic growth and environmental protection were compatible "without substantiation" (Clark 1995:225). The Rio summit "adopted this idea without further testing, as its intellectual core" (1995:225). Are there methodologies that enable measurement of the intrinsic or economic value of biodiversity as a part or whole? If so, are they applied to biodiversity and land management in Cornwall?

Secondly, there has been an explosion in the meta environmental discourse in the past forty years. Soule and Press recognise at least forty sub disciplines of environmentalism that co-exist, from empiric ecological science to the more qualitative eco philosophy and eco feminism (Soule and Press 1998:399). Much of the meta discourse investigates the important role hard science has had in quantifying nature. However, there is the acknowledgement of moving beyond the "balance of nature" paradigm to understand the temporal, dynamic and uncertainty factors of nature (Scoones 1999:480 and Dale et al 2000:639). If environmental rhetoric is to be turned into successful proactive management there is a need for an "interaction between two perspectives- socially constructed perceptions and representations and the real processes of biophysical change and ecological dynamics" (Scoones

1999:497). This might be borne out in the multitude of strategy documents that are the indicators of intent.

Thirdly, there is the recognition of a personal philosophy, relationship and engagement with nature through individual definition, expression and interaction with nature. Oates notes, “We seem to value facets of nature, notably species, habitats/ rather than our relationship with nature itself”. We value beauty but “curiously we seem to value rarity more”. “Indeed there is a significant relationship between rarity and funding” as it seems “rarity is easier to quantify than is beauty” (Oates 2006:91). Here in Oates’ quotes are all three approaches. How does humanity’s proactive relationship with nature reconcile the dilemma of its economic value opposed to intrinsic worth? Contemporary academic environmental narratives “through which social relations with nature are mediated” have significantly evolved. This includes exploring “transformations in the meanings of” and “social constructions of nature” (Harrison and Burgess 1994:291).

### **Cornwall’s environmental history and some Lizard specialities**

Whilst empirical data analysis continues unabated at ERCCIS, the social scientific discourse involving environmental issues within Cornish academic circles remains sparse. As Stella Turk states, “the individuality of Cornwall’s fauna and flora is sometimes overlooked” (1995:144). Indeed, academics acknowledge the “difference” of Cornwall culturally and historically whilst it is “also borne out scientifically” in its uniqueness and extremes of wildlife (1995:155). Spalding ponders (as does Oates) whether the view of nature conservation is elitist, geared to the expert/specialist or aimed at the general public. He maintains that there is a “need to consider landscape as a whole”, to “integrates (sic) high nature conservation areas with the totality of Cornwall” (1995:163). History of an area is important as it gives identity and continuity bringing together experts and public in a shared “sense of place”. He continues, “Wildlife forms part of the history of a site” (1995:164) where flora and fauna are clues to its development. For example, indicator species such as Dogs Mercury appear on the banks of the Helford River indicating ancient woodland. Spalding celebrates “nature getting its own back” triumphing over the Cornish

industrial endeavour on various sites. Cornish plant communities reflect the “unusual environmental conditions” of compact, unstable, toxic and often absent soil, low in micro organisms and nutrients with steep slopes, making the sites more affected by water and wind erosion (1995:165). Natural recolonisation (soft end-use) “fits in well with sustainable development policies” as they are low input, low output sites. In other words they are cheap to maintain (1995:170-171). Spalding is interested by the criteria used by EN and CWT for protecting and assessing sites. These include “size, fragility, diversity, naturalness, rarity and typicalness (1995:171). Spalding values history of the site to give us a full understanding and value of it and adds the number of rare animals and plants, the surrounding area type and ecological assessment in his assessment. “The importance of these sites for wildlife lies as much in their history as what is there now” (1995:172). Spalding concludes, the “moral geography” of any area is an awareness of humanity’s activities and part in the landscape’s development (1995:164). The biodiversity is there because of, as much as despite, humanity.

Three species exemplify how local partnerships work, two are in the BAP, and the third is the definitive flower of Cornwall that has a place in the NE management plans. Pygmy rush (*Juncus pygmaeus*), an annual, occurs in disturbed, seasonally muddy, open conditions on trackways where deposits of loess (layers of wind deposited glacial dust, Bristow 1996:130) are exposed over the serpentine rock, on a few sites on the Lizard. Sites include Traboe (NE) and Kynance (NT/NE) appearing in abundance if conditions are favourable. It germinates in the spring where timing is critical and occurs at the edges of shallow muddy puddles in tracks as they dry out. It is also intolerant of competition from other plants. Lack of use of tracks, changing grazing patterns, “improving” the relevant tracks for access and wetter and cooler springs all have contributed to its demise. Despite national statutory protection under the Wildlife and Countryside Act 1981 and national objectives and targets to restore and protect it, it is down to local proactive action by landowners and wardens to reintroduce the conditions required for its survival (CBI 2004:132-134). Grazing agreements with landowners plus the proactive use of tracks in the spring form part of the management plan. Whilst NE is the lead partner, nine other organisations and interest groups help monitor, research and manage it.

Juniper (*Juniperus communis* subsp. *Hemisphaerica*) conversely requires establishing communities away from its only known site in Gew Graze Valley on the Lizard involving partnerships between NE, CWT and the Eden project. Building firebreaks around the site and ongoing consultation with landowners and wardens completes the local management plan according to the BAP (CBI 2004 135-137). All plans are unique and exemplify the need for local knowledge, expertise and action to initiate successful protection of the relevant species.

Cornish Heath (*Erica vagans*), the symbolic Cornish flower, is not a species named in the BAP but is a crucial part of heathland management. It typifies the success of the utilisation of local knowledge principally because it is native only to the Lizard. Cornish heathland is 2% of the world's heathland resource (CBI 2004:590). Its management is through NE's local management plan, the success of which is measured through the "condition assessment" criteria laid down for the habitat it exists on. As *Erica vagans* exists on a NNR, any management plans by other organisations and landowners that inevitably affect its existence must be approved by NE.

Historically, the Lizard heathland management provides an example of unique Cornish land management. Its physical geographical detachment from the rest of the country is an important element. For the Lizard, burning heath land in temporal terms is relatively new. "Hundreds of years ago, to see the heath alight would mean the farmers winter fuel supply going up in smoke. There was no importing of fuel down motorways". They cut, stored and burnt gorse and turf in winter. Old farms still have a furze building for stacking furze (gorse). "We presently burn in winter as it is less likely to alter the structure of the soil. Nowadays with coal and oil, farmers only need grass so they burn a bit, next spring it greens up and they do it every three, five or ten years and the heath habitat is made and animals survive, the farmers make a living and the wardens re enact the same management" (NE interviews 2007). Whilst the agencies own vast tracts of the land on the Lizard they do have tenancy and/or grazing agreements with landowners. There are funding schemes that enable this land management to continue but presently in the case of NE, with the new amalgamation

of the different government departments the schemes have been delayed. For the landowners this is a major setback.

Three remaining factors are influential in how Cornwall manages its biodiversity and land. Firstly, there is more efficient collation of data. This has been due to the abilities and functions of modern computer systems for data processing. Secondly, management has been complemented by the increase in the numbers of people working within the environmental industry in Cornwall in the past thirty years both as paid and as voluntary workers. Thirdly, the accessibility and output of the mass media has contributed to fundamental changes in human consciousness and subjectivity (Harrison and Burgess 1994:291).

### **Environmental history: A Cornish perspective**

“Local people need to be convinced that wildlife refuges are of value to wildlife and people” (Harrison and Burgess 1994:308). It has been argued that the environmental rhetoric used in many strategy plans uses both vague and scientific language, or “envirospeak” of politicians and environmentalists respectively. If the public are to be convinced of any value and gain for themselves then rhetoric employed by experts needs to be aimed at specific localities and must appeal to a sense of shared local knowledge, not based on “assumed, universal authority of scientific experts” (1994:308). Within Cornwall, public engagement with written environmental rhetoric is through two distinct outlets.

The first is through official documents like the Cornwall Structure Plan and the Kerrier District Plan, which are to be replaced by Regional Spatial Strategies and Local Development Documents. These documents deal with sustainable development, the cornerstone criteria of Agenda 21 and the CBD, yet they deal with housing, energy, transport and employment policies and not the biodiversity or land management issues relevant to the dissertation.

The second outlet, however, is through the output of the partners such as CWT, NE and NT implementing land management. They exercise the belief that public

interaction and engagement is crucial to their strategies and a key to successful management. What gives a Cornish perspective to land management is the way that NT and NE proactively incorporate their activities and management to take into account their relationships with both landowners and public alike. “We have a stake in lots of people’s lives in Cornwall”. There is an awareness of what properties and land mean to local communities as a strong historical and cultural link. “We take a more holistic view of biological, landscape, industrial and archaeological issues so we cover all bases and not just our own personal or institutional interests. There is a requirement for a variety of criteria to be fulfilled for the general public” (2007 interviews). Whilst some of the activities on NT and NE land are income-generating most would adhere to the fact that there are alternative reasons for this close tie with the public in this county. The reasons being that most of the coastline especially on the Lizard and the land and buildings are part of the historic culture of Cornwall which are immediately and freely accessible and the reason for many of the trips within and to Cornwall by the public.

Within the questionnaires and interviews with NE, NT and CWT land managers, on being questioned whether global rhetoric had relevance to their work as wardens and land managers in Cornwall answers were extremely diverse. They ranged from “not at all” to it being pervasive in everyday management. The latter is due to a “better understanding about different aspects of environmental concern and problems, making people more aware of their responsibilities”. This makes the warden’s job easier because there are many levels of awareness and “peoples ears have pricked up as information is coming from so many directions” (NE interviews 2007). Global rhetoric on climate change has influenced NT on a national scale. Locally this has allowed for an introduction of a renewable energy system on the Penrose Estate (NT interview 2007). CWT representatives are also positive about the influence of global rhetoric in their daily involvement with conserving biodiversity. The BAP species and habitats are “recognised by government policy and legislation” thereby “recognised in the planning process” (CWT questionnaire 2007). However whilst Agenda 21 only provides the “background chatter” that informs the work the BAP’s do provide a “target based structure” to work from.

A Cornish perspective can be exemplified through another three examples. Firstly, most people's lives encounter conservation through the participating agencies in the CBI. These agencies physically occupy landscape, much of which is readily accessible. For example Cornwall is blessed with 400 kms of coastline. Agencies in Cornwall such as NT and NE feel that they are more holistic in their management approaches as they engage not only with the people and their diverse interests, but in a way that maybe does not happen elsewhere in the UK where people do not live so physically close to, or are culturally engaged with, the landscape that surrounds them. Secondly, much of the land management (NE) is based on familiar and traditional methods such as heath burning. This brings a temporal and cultural continuity in the landscape contributing to an important sense of place. Thirdly, for the natural historically informed, Cornish identity can be expressed not only through familiar species like the chough but also through other less well-known ones. For the botanist it is the fringed rupturewort (*Herniaria ciliolata*), Cornish heath (*Erica vagans*) and three lobed water crowfoot (*Ranunculus tripartitus*). For the geologist it is the Kennack Gneiss, Serpentinite and the whole Lizard Ophiolite.

Historic cultural and socio economic symbols of Cornwall such as the landscape of Cornwall's mining heritage have been created through human interaction with Cornwall's physical landscape. In more recent years the global political understandings of the importance of environmental issues have encouraged a reassessment of the meaning of landscape as an amenity of both economic and intrinsic importance. Cornwall's unique "physical assets" of its landscape have been and still are fundamental to its prosperity. Furthermore, its industrial heritage and the farming and fishing industries have all been reliant on the uniqueness of its geology, soil, climate and inevitably its biodiversity. Today the brand clustering of the tourism industry ensures Cornwall is all the more reliant on its natural beauty and historic diversity. Protecting its assets is fundamental to its economic success. In some ways these older industries get a new lease of life through conservation and promotion of their biodiversity. The variety of international, national and local land designations symbolize the conservation of unique habitats. Furthermore, recent social scientific theory has encouraged a discourse on the intrinsic value of nature. Nature is not only

about economic value, it is crucial to personal and cultural engagement with the physical landscape of Cornwall.

It has been argued that the crucial element in Cornish land management is the strength in the partnerships of those concerned with implementing strategy plans which are in the main involved with implementing the statutory initiative of the BAP. However from the interviews and questionnaires, two elements prevail. The first is the personal empathy that the interviewees/respondents have with nature which strongly influence their decisions on the day-to-day management of the habitats over which they have stewardship. The second element is the constant requirement to balance funding with what is required for conservation as laid down by the global to local strategy plans such as the BAP and the needs and demands of the public within the tourism/access context. These are qualitative criteria. Social theories have emerged some of which highlight these very dilemmas that Cornish land managers encounter. Perhaps by analysing the theories and their recommendations, there might be solutions to some of the problematic areas of biodiversity and land management on the Lizard that more hard scientific theories do not confront. Other theories might already unknowingly be in place elsewhere and could be applicable to Cornwall.

#### **Chapter 4 : The intrinsic and the economic value of nature.**

In the preceding chapter a case was made that the main focus of this dissertation is a proposal that there are three major narratives of environmental social theory emerging from the contemporary global environmental meta discourse. A detailed analysis of the theories within each of these narratives and their relationship to, and possible incorporation into, Cornwall's biodiversity and land management follows. The three narratives include the economic versus intrinsic value of biodiversity argument, the development of a multidisciplinary environmental discourse and the importance of personal engagement with nature and the landscape. This chapter discusses the first of the three. Chapters five and six discuss the remaining two.

Before looking at the merits of, and the practical problems that arise locally within, the global argument that biodiversity has both an intrinsic value and an economic value, a brief look at why any part of the natural world does have both economic and intrinsic value would be beneficial. The argument arises where ecologists and economists put different values on biodiversity, the former as an essential and critical ingredient in a healthy ecosphere whereas the latter sees it as just another good, looking for a market (Gowdy 1997:25). Agenda 21 proposed that not only should environmental impact assessments be made "for developing projects likely to affect biological diversity" but also an economic incentive system should be devised to encourage biodiversity conservation and the sustainable use of biological resources (Robinson 1993:lxix). However whilst there are no practical steps on how this should be achieved within such an important global agreement, this begs the question of how the intrinsic value against the market value of nature and its constituent parts can be determined. Gowdy proposes that there is validity in the argument that biodiversity has a financial value exchangeable within the world's economic markets. That could "justify biodiversity protection measures" (Gowdy 1997:25). He calls for economists to "broaden their concept of value" and that a wider debate outside the purely scientific arena should be forthcoming on value and utility of nature's resources (Gowdy 1997:38). He concluded that there is a need for methodologies to determine not only "the various levels of biodiversity value point" but also "appropriate policies for its preservation". One aim of the dissertation is to research into whether Cornwall

and the Lizard has such a methodology in place that can measure the balance between the intrinsic and economic importance of its biodiversity. Additionally, for Cornwall there is a requirement to measure whether there are limits to both numbers of tourists and the various types of niche tourism on offer to the general public, which would not be detrimental to the preservation/conservation of its biodiversity. This debate permeates policy and strategy initiatives and decisions on a daily basis for the land managers in Cornwall and on the Lizard (NT and NE interviews 2007).

On examining the economic versus intrinsic value of biodiversity argument, three elements are important. The first involves daily management decisions guided by the intrinsic and economic value of Cornwall's biodiversity. The second involves how economic and intrinsic values have influenced Cornwall's development of strategies to encourage and achieve a sustainable tourism industry that has historically relied on engagement with the physical landscape. The third directly relates to the difficulties of apportioning funding to preserve/conservate Cornwall's biodiversity and its unique landscape character through environmental partnerships.

The first element in the economic versus intrinsic value of biodiversity argument relates to the main actors involved in biodiversity and land management on the Lizard who encounter economic management decisions on a daily basis. Oates' implication of the relationship between rarity and funding (Oates 2006:91 is a dilemma for NE and NT locally as there are limited financial resources to manage the land. For Natural England on the Lizard, in 1979 there was 600 acres of land to manage whereas in 2007 there is 5000 acres owned and managed. "Managing land is an expensive operation whether you do it yourself or with contractors" (NE interview 2007). This includes monitoring species, which will be taken up by part of the budget if left to external agencies to perform. Whilst there are indeed rare species on the Lizard there is the constant need to entice the general public to the Lizard, "How do you sell the Lizard on *Isoetes histrix* (Land quillwort)" a plant that appears February to April as opposed to Cornish Heath and coastal grasslands in June and July which for the general public defines Cornwall and the Lizard. Whilst it may be hard to justify to the general public and often to the wardens why time and money should be spent protecting and preserving rare lichen it is the rarities that not only give the

Lizard its uniqueness to be preserved for their own intrinsic value but also contributes to the economy by encouraging visitors. For example, in Cornwall, the return of the chough has attracted £118,000 of visitor spend to the Lizard area, supporting the equivalent of 3.2 full-time jobs (RSPB 2006:4). Furthermore, the Lizard heath fire of 1976 was extensive and went deep into the soil. Many thought everything was lost. Yet, rare plants that help define the Lizard reappeared notwithstanding the efforts to conserve, evoking a confidence that the wardens still retain in “the wonder of nature”. Rarities reappeared often in completely new areas as the new conditions encouraged the dormant seeds and bulbs to germinate and flower (NE interview 2007).

The second element in the economic versus intrinsic value of nature argument deals with the financial rewards that the physical landscape presents to the tourism industry. Rees studies macro and micro economic conditions that are associated with the value of biodiversity. International, national and, by default, local economies are affected by what he sees as incompatibilities between the “growth orientated cultural paradigm and biophysical reality”. He argues that there is the need for fundamental change not “marginal reforms” (Rees 2003:30). Much of this will be through reinterpreting our valuation of the Earth’s resources. Cornwall’s potential economic prosperity whilst already enmeshed within national and global economies is increasingly dependent on promotion and experience of its physical environment. The tourism industry relies on it. Does it acknowledge and adapt to this status? Organisations like CoaST (Cornwall Sustainable Tourism Project) are aware that sustainable practices by all companies, organisations and individuals are crucial to Cornwall’s future economic prosperity. Acknowledging that biodiversity and land management is at the heart of what makes Cornwall attractive to both the tourism industry and potential investment, CoaST has encouraged a network of like-minded organisations to liaise and work together on a number of projects to change the prevailing mindset and direction. Projects include energy usage, transportation and general co-operation between disparate members with a common goal of sustainable business practices. Similarly, niche marketing of the physical environment straddles a fine line of promoting and protecting what is both unique and delicate. However, Kynance Cove attracts 150,000 people a year yet still retains its character and uniqueness through precise management by NT and NE (NT interview 2007).

Mills' research pertaining to Devon has shown that the implementation of BAP targets can also have socio-economic benefits to the local economy in terms of wealth and employment creation (2002:544). Locally, this can be judged by finding an interlinking relationship between biodiversity, land management and tourism. She continues, "Activities can simultaneously protect the environment and create jobs and income for the local economy. It is also an idea promoted by policy makers who recognize that the net income and employment consequences of policies such as biodiversity restoration programmes are likely to influence the degree to which they appeal to government and local actors" (Mills 2002:534). For the South West region, the positive impact on the economy from tourism activity as a direct result of nature conservation can be implied as 300,000 jobs are in the tourism industry (Towards 2015 2006:4). Indeed, in the "Towards 2015" strategy document, recognition that "the single most important driver for our visitors is the landscape, the coastline; the natural environment" suggests that implementation creates both jobs and a public awareness of the importance of biodiversity. A key part of sustainable biodiversity and land management for tourism is "ensuring that local people are involved in key decisions about the investment and the regulation of tourism at every level (Towards 2015 2006:7).

Funding and successful management, the third element, requires available monetary and human resources to be apportioned accurately. It is a tricky business. For NE, funding is designated through a bid system where land management plans are drawn up for the differing habitats and species and money is made available after consultation with regional and national management. For NT a similar regional plan is drawn up. Additionally there are finite financial resources within the agencies therefore the requirements to continually update the scientific records of individual species is affected by budget allocation. Specialists can be brought in to ascertain actual numbers of species that are managed but much habitat and species monitoring is done by the agencies through the "condition assessment" criteria. Condition assessment is a preset number of fixed criteria representing a healthy habitat against which the habitat in question is measured against. An example would be the three-lobed water crowfoot (*Ranunculus tripartitus*), a Lizard speciality within the Cornwall

BAP. The management policy is to create the required habitat, in this case achieved by creating ruts by driving jeeps over the historically pertinent areas on the Lizard, to encourage the plant to grow. The plant like so many Lizard species is monitored but actual numbers are not systematically logged. Specialists will not be brought in to count actual numbers but the condition assessment will establish if the species increases or decreases through the actions of the land management partnership (NE interview 2007).

Overall the act of finding a balance between the economic value and the intrinsic value of biodiversity and land contributes constantly to the strategy programme for the wardens and land managers on the Lizard. However, two further dilemmas arise. The first is that there is a requirement to balance the preservation of biodiversity between the needs of specialists and the general public. The second is to find a methodology to measure the right balance that maximises the satisfaction of the multitude of experts and general public within the remit of the relevant strategy or management plan. Presently not a single methodology exists to do this. Locally according to interview responses, attitudes have changed and personal views influence policy. Previously, experts and the public were less aware of the interconnectedness of the constituents of independent and neighbouring habitats and ecosystems. The holistic multidisciplinary approach had not been formulated. “Years ago a birder would step on a rare plant to view a bird and botanists would remove a nest to protect a plant, but with education on how it is all interlinked this is not an issue” (NE interview 2007). Presently, there is a “much better understanding of systems” an interdisciplinary awareness and appreciation of other specialist’s views. A warden’s job is to “try and balance the interests of all parties through management of all habitats”.

Four questions from the meta discourse are beginning to be asked locally. They include firstly, what are the criteria that would establish the correct constituents of any habitat or ecosystem. This is exemplified by the “condition assessment” criteria already in use by NE and NT. Secondly, what exactly is wilderness. Thirdly, who are we preserving for. Finally, how much interference should humanity make in conservation (Oates 2006: 93; Scoones 1999:489). Only now are these questions

being asked by long serving land managers from many of the mainstream environmental organisations in the UK. Some are establishing an organisation called the VINE project, the Values in Nature and Environment (Oates 2006:90). Many of the members having worked their professional lifetime creating and implementing structured agency and organisational strategy plans and are now asking, with a touch of soul searching, questions on the wider and personal issues of humanity's role in biodiversity and land management. Inevitably Cornwall's managers will ask the same questions if they haven't started already.

For Cornwall, the awareness of the economic value of the "physical assets" of the SW and Cornwall are acknowledged on all levels. The SWRA and NT's strategies acknowledge that landscape is a major economic driver to attract business. There is an awareness of how income can be turned into finance for land management. "To continue the conservation practices we need revenue and the argument is that conservation should make the land enjoyable for the public. Without the revenue from Trust land, conservation wouldn't otherwise be done" (NT interview 2007).

A balance and awareness of how to make social, political and economic success of land and biodiversity management permeates the strategy plans and decision-making processes. Maybe Healy and Shaw are wrong in that prevailing "economic and material policy preoccupations" will be the fate of "the environmental sustainability agenda" (1994:25). To the contrary, Cornwall is well placed to take advantage of the sustainability agenda for the reason that the agencies and people are culturally and economically interlinked.

### **Chapter 5: Multidisciplinary social theory.**

The proposal of a second major theme of environmental social theory involves the emergence and acknowledgement of a multidisciplinary environmental discourse. An “increasing disciplinary diversity” (Soule and Press 1998:397) has evolved including qualitative and quantitative theories, narratives and methodologies that require “an exceptional breadth and depth of knowledge” (Soule and Press 1998:404). The diversity of subject matter ranges from biological sciences, environmental law to eco philosophy and eco feminism. Whilst it is acknowledged that academics cannot “successfully bridge the ideological and epistemological divides” that exist (1998:404) the inclusion of the following theories are not by any means exhaustive. They are investigated in detail because an awareness of their content could contribute to their inclusion within future strategies in Cornwall. Themes of language and government intervention are ever present within all the narratives.

Dale et al (2000) proposed ecological principles and guidelines for managing the use of land. They called for an understanding and incorporation of the following five principles within management planning. These are a recognition that ecological processes function over many time scales, species interaction, the uniqueness of a designated site, disturbances whether natural or human influenced and finally, size and relationship between habitats on the landscape (2000:639). These five principles have been proactively integrated into agency and local government strategies in Cornwall.

Firstly, the temporal aspect of habitat management is part of heath land management system on the Lizard. After regular heathland burning in winter, spring orchids will grow and then fight for light after two or three years, getting crowded out by the new growth of gorse and heather. Seeds then lay dormant until burning happens again a few years later. It is a cycle, practiced by old communities and now new farmers (interview 2007). The temporal aspect also applies to the historic use of land. Whilst NE have taken much time to engage with local landowners to find management practices that have been utilised over the past hundred years, Spalding calls for the soil conditions of Cornwall’s industrial heritage at specific metalliferous sites to be

included as important criteria within any land management strategies. “The importance of these sites for wildlife lies as much in their history as what is there now” (1995:172).

The second element, namely the interaction of species defines the uniqueness of the Lizard’s biodiversity. The Lizard’s unique geology and soils produce an array of globally diverse plant species. Spring sandwort and land quillwort often grow side by side, the former originating from the tundra, the latter from the Mediterranean. Grazing patterns on the cliffs at Mullion allow for this to occur. The reintroduction of the chough into Cornwall has also encouraged a better understanding of the interaction of species. By having cattle graze on the cliffs that have not been injected with the sterilising agent Ivomec, it enables the grubs that the choughs feed on to inhabit the cattle’s droppings. This process is played out on the short grazed maritime grassland habitat on the Lizard.

Dale et al’s third element that of the uniqueness of a habitat is reflected in the areas of the Lizard that have international, national and local statutory and non-statutory designations with their own criteria for management. The Lizard’s National Nature Reserve (NNR) managed by NE is in Cornwall’s Area of Outstanding Natural Beauty (AONB) its west coast is part of a World Heritage site and includes a SAC, SSSI’s, and RIGS sites. NE’s takes “all components of the various designations” which “are written into the management plans” (NE interview 2007). The fourth principle to be adopted in land management according to Dale et al concerns non-human interference on habitats. Locally, NT recently decided that climate change must be a factor to be considered within management plans. The question arises whether climate change will alter present planned management resulting in a difficulty in keeping all designated sites in favourable condition? “Will oak woods on Dartmoor be too stressed in 50 yrs time? Can we conserve habitats for certain butterflies if they haven’t got a hope? We cannot be sure how we can plan despite guesstimates” Weather patterns and temperature changes will cause more heath land fires whilst additionally it is estimated that more people will visit when Spain’s temperature becomes unbearable (NT 2007 interview). Presently all land managers engage with the rhetoric surrounding the natural changes that the hard science suggests is occurring.

Finally, to complete Dale et al's principles, a constant monitoring of habitats are made by NE and NT through the process of "condition assessment" which have criteria that defines in what condition designated areas are and what they should be. For heath land, the percentage of scrub is prescribed and management is tailored to bring it into favourable condition. For NT since 1985 the Trust has re-created 1,228 hectares of lowland heath in England and Wales some 20% of the national re-establishment target with 10% of the 6,000 hectare target achieved on Trust land in Cornwall alone. In Cornwall the restoration and recreation of 1750 hectares of heathland has been achieved "through partnerships with industry, planners and agencies" notably English Nature, Imerys, Goonvean Ltd, Heritage Lottery Fund and Cornwall County Council. In this single step "12% of UK BAP targets for lowland heathland re-creation" has been achieved proving that whilst "it is important to have plans for our work/ action on the ground is essential" (CBI 2004:2).

Lautenschlager's "identify the specifics" methodology building up data of species into a very localised eco district and then repeating this over a wider area creating an ecoregional picture has been utilised on local to national levels. The Cornwall BAP is species specific where empiric data enables the partners to monitor each of the relevant species and implement action according to criteria mainly laid down at a national level. Lautenschlager's methodologies encompass the scientific and social scientific approaches. Saying that we support "biodiversity conservation", "forest health" and "ecosystem management" will not help us "identify interactions among biota, management practices, and ecosystems of greatest concern" (Lautenschlager 1998:181). Indeed, there is a requirement to identify and quantify the effects of "specific management practices" of concern on ecosystems over time so that inappropriate practices can be modified and/or alternatives developed and tested. However, meaningful discussions cannot begin until we have identified these locally specific concerns (1998:181). For Cornwall there are two anomalies. Firstly, there are a number of Red Data Book species specific to Cornwall thereby requiring guidelines for a new plan to be implemented at the very local level. Examples include pygmy rush and Cornish heather (not in the BAP but part of NE's management plan). Secondly, some land management plans are written at regional and national levels by

local government and national agencies, the aims of which are to be applied on the Lizard and in Cornwall. Whilst there is a fair degree of open interpretation of national or regional plans with their inherent fault of an inability to be locally specific, the South West Regional Nature Maps and Natural England's Natural Area Profiles rely on the local experts' knowledge to build up the data to be utilised in establishing the designated areas within their strategies. This indicates a fair amount of knowledge transfer up and down the spatial arena with the implementation reliant more on local knowledge.

Wada et al's call for inclusion of "social considerations" in any ecosystem management applies throughout any land management decision-making process in Cornwall. Globally, Wada et al found that the "disagreement over whether ecological (biocentrism) or social factors (anthropocentrism) should have priority is at the centre of debates over the likelihood of achieving ecosystem management (1998:892). This is similar to the intrinsic versus economic "value of biodiversity" argument between ecologists and economists but here the argument revolves around how much influence ecologists and/or social and political scientists should have in biodiversity and land management strategies. Smith and Pritchard in their survey of 557 local authority nature conservancy strategies found that Town planners in partnership with ecologists are widely used in strategy preparation yet most are without the input of ecologists (1993:6). Equally, implementation is enacted through planners, ecologists, and countryside and landscape staff without input from teachers, community workers and highway engineers thus neglecting to pursue a "corporate" involvement (1993:9). Within Cornwall, questionnaire replies indicate that of those people in Cornwall that were approached and replied who are involved in environmental work, the majority have some hard science backgrounds. However, experience and interaction with partners and public alike is cited as equally important as any scientific data, indicating that personal opinions and beliefs play a role in all or some levels of decision making within Cornwall's land management.

Harrison and Burgess's argument is for the need for non-scientific language to engage the public with their landscape. It is interesting to see in Cornwall, local actors spending much time and revenue on producing leaflets, designing informative

websites, encouraging public voting for wildlife awards and organising public walks. With simple and effective language they encourage engagement with the physical environment. With this encouragement of public access there are no perceived problems of competing interests with protected and conserved land and public access. Whilst 150,000 people visit Kynance Cove each year there are no problems irrespective of it having extremely rare Red Data Book species, “so the argument is false that people and wildlife do not mix” (NE interview 2007). Even the choughs and the highland cattle on the Lizard have adapted and flourished.

Munton looks at political hierarchy and legislative control. He postulates that countries are developing new forms of partnerships and self-regulation to replace the “traditional notions of state command and control” (1997:148). Thus the environmental and sustainability debate is engaged within the plethora of progress reports and government strategies for sustainable development. (Munton 1997:158). However as it has been seen for Cornwall, Agenda 21 rhetoric has disappeared from the public arena. Munton points to one possible reason. The government will inevitably give priority to consumption over environmental protection acting “as a source of resistance in the face of changing social values” (Munton 1997:159). For Cornwall the opposite is true in that the social cohesion of all proactive partnerships that deliver the BAP brings strength to biodiversity and land management. This may be the reason why Cornwall’s local Agenda 21 does not feature highly in local political rhetoric or any of their local management plans.

Whilst “environmental enhancement is more from political impulsion than legal compulsion” (Smith and Pritchard 1993:46), Munton sees a general mistrust of the governments handling of environmental science and new theories. There is an old idea that universal theories need to have universal validity and not be adaptable in local situations. If this is so then the government presently are perpetuating the idea of “a culturally insensitive appreciation of how society works” (Munton 1997:159). In Cornwall much of the scientific data is monitored, processed, interpreted and acted upon in the local arena by an ever expanding scientific community of experts who are also localised bringing the required “universally valid knowledge to bear on local situations” (Munton quoting Rouse 1987:21). In short, maybe Local Agenda 21

objectives for Cornwall, specifically for biodiversity and land management are not as important as understanding and gaining knowledge of the local unique habitats, species, geology, soil and historic land use of the local physical landscape.

Additionally, much of the important biodiversity on Cornish land is under the stewardship of scientifically aware people and not politicians.

Evans' work on the Black Country BAP discovered that the implementation "locally from a generic national framework was people-driven, building upon pre-existing networks of individuals and expertise, socially embedded, within institutional and political legacies" (Evans 2004:276). Echoing Smith and Pritchard's work on local government environmental strategies, it brought ecologists, conservationists and end-users/implementers together in an effective partnership that facilitated the production of 'localized' knowledge. Such knowledge was based upon and achievable within the local environmental and organizational context. This was conceptualised as "path dependency", where a network of people and organizations formed the steering group, extending out to other named partners from where processes of allocating and planning species and habitat action plans originated (Evans 2004:278). The concept of path dependency involving the usual local actors determining direction of policy and action applies to Cornwall. Each individual species and habitat in Cornwall's BAP has a named lead partner and other contributing partners designated from the 120 member organizations within the CBI. Each species' plan depends on the results obtained from the fixed criteria for each species. These include monitoring status, understanding current factors causing its loss or decline, objectives and proposed targets. The actual action plan involves policy, legislation, site safeguarding and management issues, research and monitoring measures plus advice, publicity and communication with fellow partners, land managers, owners and the general public. Many of the individual plans are linked to others within the BAP.

Evans concluded that when local expertise was available then plans were written, but if it not then proposed plans were discarded. For Cornwall, the implementation of biodiversity and land management remains localized mainly through two elements. First, it is responsive to the nature of the area and second there is the existence of local expertise (Evans 2004:278). From developing to implementation of the BAP,

Cornwall has been and continues to be well represented by expert, local knowledge. This is by virtue of the many different but complimentary designations of the land, the actions of the numerous agencies and voluntary groups and the awareness and protection both statutory and by proactive historic land management of the unique species and habitats.

Trudgill's psychobiogeographical discipline gives equivalence to scientific and emotive narratives and in Cornwall this pervades the daily work of those implementing biodiversity and land management. Based on observation and the work of ERCCIS, both hard science and the underlying emotion that motivates environmental work are crucial to land managers in Cornwall. All interviewees spoke with reverence, respect and awe of how nature works, with or without proactive human management. Day to day physical interaction with nature is integral to their aesthetic appreciation, the "art and beauty of nature" (NT 2007 interview). It is important that their work reflects a balance of their own beliefs as much as the rationality of conservation. "At source conservation has an emotional motivation" just as much as it can also "be rationalized" (Trudgill 2001:693). This "interaction between two perspectives" (Scoones 1999:497) of utilising hard and social science in any decision making process is a strong, familiar theme running through the interviews and questionnaire. The third narrative of recent environmental social scientific theory explores this interaction further by examining personal views of nature of those involved in Cornwall's biodiversity and land management.

**Chapter 6: Personal values and engagement with nature**

The third major narrative of the emergent environmental social theory involves personal belief, relationship with and understanding of nature. It can be shown that it influences many of those involved in Cornwall's environmental work on a daily basis. For many it is more important to interpret and implement the strategy plans in their own way but always within the relevant guidelines, working physically and proactively on environmental management in Cornwall than it is to write the strategies from further up the agency or governmental hierarchy. It is literally a career decision (NE interviews 2007). For some the motivation to work with land management and biodiversity issues has changed from an original belief in nature for its intrinsic value on an almost evangelical level to a more personal satisfaction to be working "to protect things of worth and beauty from ignorance that can't look after themselves" (NE interviews 2007). Of those interviewed working in Cornwall, most would probably understand Scott's values of landscape, sense of place and cultural associations more than the average layperson he refers to. The layperson, Scott believes, are "incapable of meaningful interpretation" and thus shouldn't be allowed to "express judgements" on landscape matters (2002:273). However, locally, personal interpretation of strategies whilst working within their guidelines is seen as leading to a positive outcome. "Whatever strategies there are, ones perspective will be at the forefront of management" where time is spent on personal preferences within the strategies. It is healthy for habitats where aesthetics and functionality vary, reflected by what and how jobs are done. "Same as any landowner, families over generations do things different from each other. That is good as opposed to doing work to the same standards year in which is retrospective and not responsive" (NT 2007 interview). There is also room for experimentation though exclusively on a small scale within habitats. Experience and knowledge gives you "a feel for the habitat, the flip side being if it doesn't work you record it and learn from it" (NE 2007 interview).

Burgess found that if producers and consumers of environmental meanings could collaborate more then there would be better understanding of "contemporary discourses on human environment relations" (Burgess 1989:139). Trudgill furthers the argument in that specific words can be value laden with scientific meaning such as

pristine, fragile and loss (Trudgill 2001:680) which is misleading. To appreciate Cornwall “the words nature conservation are unhelpful as you lose sight of the beauty of nature and the art of nature which is very important/ aesthetics are just as important as the functionality of management and the way it is done” (NT 2007 interview). Oates reflects, “There is no single accepted definition of “nature conservation” in the UK. Even the two words independently are challenging to define” (Oates 2006:90). The word sustainable on the Lizard means for one NE employee “understanding the Lizards history and how land has been managed for thousands of years”. Strategies inevitably accommodate Oates’ assumption that value judgements are crucial if it is accepted that whatever human activity does or neglects or chooses not to do some wildlife will benefit whilst others will be adversely affected (Oates 2006:91). A familiar theme from the interviews and questionnaires is of personal values changing and evolving over time becoming part of an environmental philosophy that develops and gets included in the decision making process.

Oates feels that “the professional language of biological conservation obscures the values we hold regarding nature” where “envirospeak” the professional language of environmentalism is unintelligible to the outsider (2006:94). This tends to be evident in the vagueness of the non-statutory agreements on international and local levels. Whilst this dissertation deals with the professional field it would be hard to analyse if “envirospeak” is an obstruction to any meaningful understanding of environmental rhetoric by the general public. Separate analysis could be made on whether the rhetoric within local agreements is “envirospeak” and that the consumers and producers of the strategies relevant to Cornwall indeed collaborate as Burgess suggested. However, a Cornish perspective on biodiversity and land management is indeed detectable.

Scott’s work, the LANDMAP experience, involves attempts by the Countryside Council for Wales to find methodologies to measure the public perception of landscape (Scott 2002:271). The University of Bristol attempted to gauge public perceptions and feelings of the landscape of Cornwall in the 1980’s whilst contemporary investigation and analysis is assessed through the many reports and strategies of the tourism industry. All of them attempt to encapsulate the values and

meanings that are attached to landscape. LANDMAP recognises that local and visiting people grow accustomed to a certain landscape and are reticent to see change as it gives individuals a sense of well being and place. Yet whilst visual perception, familiarity and appearance of landscape have always been important to local people, values, past experiences and socio-cultural conditioning of the observer are also important. If any landscape type can be evaluated in both quantitative and qualitative terms the result is an understanding of landscape through the “totality of the landscape”, and not just from the particular static physical features and elements contained within it (Scott 2002:271-272).

There are temporal elements relevant to a Cornish perspective of biodiversity and land management. First, whilst Oates perceives that a change in social values from generation to generation will alter the decision making process and the perception of landscape (2006:91) for the Lizard this has not happened. One NE employee states that management practices have changed little over hundreds of years. Indeed NE try and employ techniques that have been around for generations and take time to engage with local landowners through gaining knowledge of how the heathland was managed over the centuries. Second, the importance of environmental issues to the social wellbeing of humanity has become more important in recent decades. Presently, for Cornwall any professional analysis of the public perception of landscape can only be gained through tourism data, as there are no methodologies to specifically measure public perception of biodiversity and land management. Maybe applying the LANDMAP methodology would correct this situation. However, an awareness and existence of the importance of biodiversity to the general public, both visitors and indigenous, can be shown through the proactive “development and promotion” of the “brand clustering” type of marketing of the natural environment in the “Towards 2015” tourism strategy.

### **Changed values and a Cornish relationship with nature.**

There is a requirement for a unifying methodology to find the best criteria for designating land use that would contribute to the intrinsic versus economic value of land and biodiversity debate. A more radical response to the numerous empiric and

theoretical discourses of environmentalism is the growth in the literature on environmental ethics. Environmental ethics is primarily concerned with humanity's relationship with nature, one of the three main narratives emerging from the more recent environmental social scientific theories. Areas of the Lizard are protected unless it is deemed economically necessary to build on certain land (KDLP 2002:7). How can this dilemma be resolved to satisfy social and economic criteria? The discourse could begin with the following ideas and questions introduced by Oates that could be applied to Cornwall's relationship with nature and its unique landscape. Is Cornwall's conservation about going back or stalling time and restoring what might have been and will never be again to what it was? (Oates 2006:92). Is nature conservation in Cornwall "reforging the relationship between humanity and nature?" (2006:93). Do these economic assets of landscape and biodiversity have intrinsic value? Part of the answer is connected to the potential symbols of Cornishness, namely the unique BAP species. They could be "features of significance" that result from "the philosophy and management of change". They have indeed been prioritised and "the bureaucratic systems necessary to achieve" conservation is already in place (Oates 2006:93).

For Cornwall it can be argued that not only is "a clear and full definition of the purpose of nature conservation" being implemented (2006:95) but also the Lizards primeval natural resources that have often been overlooked (Turk 1995:144) are symbols of its cultural heritage. Work on the Lizard harks back to centuries of land management that are continued today albeit for slightly different reasons in that the residents are not reliant on heathland for their fuel. Cultural symbols are meant to give an impression of longevity, significance and uniqueness. The Lizards unique natural history and the present land management that allows it to survive validate the assumption that "conservation is about negotiating the transition from past to future in such a way as to secure the transfer of maximum significance" (Holland and Rawles 1996:16). Indeed, with regards to recognisable cultural symbols there is an argument for the inclusion of geological and biodiversity symbols, which are somewhat more established chronologically. Is it not time for the Kennack Gneiss rock type, the Lizard Weevil (*Cathormiocerus britannicus*) and Cornish Path Moss (*Ditrichum cornubicum*) to be acclaimed proudly as important symbols of Cornwall? Spalding

and Turk have made similar arguments of the uniqueness of Cornish biodiversity and landscape. As an endorsement, the Cornish Path Moss “is a pioneer species and is restricted to sparsely vegetated soils on old copper-mine spoil” (CBI 2004:77). All three should share the limelight with the more recognisable chough that proudly rests above the Cornish County Council’s coat of arms, itself a relatively new symbol dating from the 1940’s.

## **Chapter 7: Weaknesses of data and arguments and problems in construction.**

It has been necessary to explore the latest social theory in some detail in order to analyse whether any of the new narratives and respective methodologies have been applied within the Cornish environmental infrastructure. The reason being, the area of environmental social theory is new for Cornish Studies. The sheer variety of multidisciplinary subjects and their interdisciplinary academic output has necessitated a selective approach to the many important narratives within the environmental discourse. However three significant strands have emerged from analysis of the theories, which form the basis of the investigation into their application within Cornish biodiversity and land management.

The acknowledgement of the multitude of land designations on a multi spatial scale has also demanded a more rigorous examination of each one for their differences and inevitably their incorporation into separate management plans. However, space precludes this and it is their similarities and how they are integrated into local land management plans that are highlighted. An awareness of the problems of multi scalar land designations on Cornish land management is touched upon at various times in the dissertation and further analysis elsewhere would be worthwhile.

The dissertation also reflects the views of those members of government, agencies and organisations that made themselves available for interview and cannot be seen as official responses. The analysis of official documents such as Agenda 21 and the Kerrier Local Plan remains a personal interpretation and due to the enormous content of much of the material, it has also been selective, especially regarding Agenda 21, which has 39 other chapters relating to sustainable practices. This dissertation deals with one chapter relating to the conservation of biodiversity.

Many fundamental policy areas linked with local government environmental and sustainability plans including housing, transportation, jobs and education have not been emphasized. Indeed, it is the local government's mandate to include "plans to accommodate biodiversity protection and restoration alongside economic and social development (CBI 2004:3). Sustainability pervades all sectors of local government

planning and accordingly, biodiversity and land management issues cannot be divorced from the plans that involve these vital areas of Cornwall's infrastructure. The Local Public Service Agreement where local government "have a more active role to play in delivering biodiversity conservation through sustainable development" (CBI 2004:3) is not studied in detail. Neither is the new Sustainable Community Strategy. Whilst biodiversity and land management fits into Cornwall's overall integrated sustainability development plans it is not the task of this dissertation to analyse this, but again worthy of further investigation.

One problem encountered in data collection involved the number of questionnaire replies. Having sent out to NE in Truro and CWT in Allet, Truro, very few were replied to. Indeed less than 10 were received from a possible 60 plus. Three interviews were made. However, it has been made clear within many of the interviews and questionnaires that whilst present management plans have been based on rhetoric from the past and present it is the future that could vastly alter any preconceptions about present methodologies. Data on global warming indicates problems will arise that requires a renewed awareness of the need for a rapid response to the inevitable change to Cornwall's habitats and species. How present indigenous species react and invasive species adapt to the new climatic conditions will have a great bearing on management plans (NT and NE 2007 interviews). Whilst the hard science is continually used to prove these findings there is already discussion on how much human interference must be made to the new habitat conditions. Social theory is crucial. For Cornwall the discussion must also extend to how climate change will affect the habitats and landscape that the tourism industry is based on irrespective of sustainability policy. Additionally, for Cornwall and the Lizard the amalgamation of three government departments to produce Natural England has only happened in the past nine months and teething problems of funding, policy implementation and job allocation have already had an affect on the implementation of land management. It is a matter of concern to those land managers relying on NE that these problems are sorted out in the near future.

Two other points need to be raised. Firstly, different habitat designations encourage different methodologies for management. They are generally designed by different

agencies on international to local scale and would vary in their criteria for designation and management. An example is NE's Natural Areas where physical boundaries are based on the distribution of wildlife and natural features and included the land use pattern and human history of each area. This is in contrast to the SW Regions Nature maps, which select landscape blocks of land known as Strategic Nature Areas (SNAs) without any other criteria. Their aim is to improve habitat networks and to sustain wildlife within them. Furthermore, it is difficult to assess how much interagency coordination and cooperation is made especially where designated land overlaps. Secondly emphasis must be made on environmental careers. It was a desire to investigate how career choice and attainment might influence decisions made. How far had the respondents gone in their careers? Do those initiating the aims and objectives at national and international level sacrifice time spent at the "sharp end" to remain environmental politicians making broad plans that do not apply to any specific locality? Constructing policy documents at a higher level is definitely a career move (interviews 2007).

The motivation for the dissertation originates from two directions. Firstly, global environmental rhetoric has become central to all debates in the socio economic and political arenas. It is important to find out how pervasive global environmental rhetoric has been in a variety of management plans in Cornwall and more locally in a unique bio diverse area. Secondly, there has been a lack of environmental social theoretical literature in New Cornish Studies and specifically the debates surrounding the economic versus intrinsic values of nature and the importance of personal engagement with nature by the individuals and professional bodies entrusted with the important work of conserving and managing Cornwall's physical environment. Whatever the strengths and weaknesses of the dissertation, hopefully, above all, it has also provided an impetus to encourage an academic reengagement with environmental issues within Cornwall.

## **Chapter 8: Conclusion**

Global environmental rhetoric arises within three distinct arenas; from the conclusions derived from verifiable scientific data; within the verbiage of global political agreements and as the subject matter of social scientific theory. Scientific data has been continuously collated and utilised to help formulate and drive environmental management plans. Without scientific proof, strategy would be impossible. Since the pioneering 1972 multilateral environmental meeting in Stockholm, statutory and non statutory strategy documents have given momentum and direction to the global discourse on a multitude of environmental issues from acid rain and climate change to sustainability issues. Historically, the only path to resolve environmental issues has been through hard scientific proof and political persuasion. More recently, with the emergence of multidisciplinary qualitative environmental narratives there has been an additional interdisciplinary discourse with hard science. Subsequently, socio economic initiatives have gained global acceptance within strategy documents such as the statutory CBD and the non-statutory Agenda 21. The dissertation has dealt with the expansion and influence of social theory within the domain of published political agreements. To ascertain whether social theory has been influential on a local level, documents on all spatial levels have been analysed and questionnaires and interviews with local professional land managers have been conducted.

Three main narratives have developed from interdisciplinary social scientific environmental theory and give credence to why Cornwall's biodiversity and land management could assimilate a new methodological approach. The narratives include firstly, the debate surrounding the economic and intrinsic value of biodiversity; secondly, the emergence in the past thirty years of a multidisciplinary and mainly qualitative environmental discourse and thirdly the need to include attitudes to, and personal engagement with, the natural environment within the decision-making processes of biodiversity and land management. There appears to be a Cornish perspective on land management not only through the close engagement of its practitioners with the historic uses of the landscape but also in their interdependency and interrelationship with the local and visiting public. Underlying this is Cornwall's nationally and internationally unique biodiversity and geology. Whilst it has been

shown that some of the scientific and qualitative theories are already in practice possibly unknowingly, there are more theories that could contribute to Cornwall's environmental discourse and indeed be utilised in its management.

Consideration of what is the central motif of Scoones' investigation, the "conceptual and methodological common ground" between the natural and social sciences, is vital to making any decision making process a holistic and informed one. Indeed, all the theories analysed within the dissertation emerge from a mixture of quantitative and qualitative disciplines. The emergence of "New ecology" changes the way we "understand the relationships between social, economic and ecological processes". It gives equivalence to social and hard science making the "prospects and challenges of new types of interdisciplinary interaction" all the more important in the creation, monitoring and implementation of land management strategies (Scoones 1999:480).

The themes to be assimilated into a new Cornish methodological approach encompass the three narratives. The economic and intrinsic values are represented by Scoones' introduction of the elements of nature's complexity, uncertainty and dynamics into the restrictive balance of nature paradigm. Additionally, Rees calls for the understanding of and attempt to solve the "systemic incompatibility" between ecological and social sustainability and the prevailing expansionist global development paradigm (2003:39). Mills encourages adherence to the BAP, as it will "have socio-economic benefits to the local economy in terms of wealth and employment creation" (2002:544).

There are so many multidisciplinary elements that have emerged as candidates for inclusion in the environmental decision making process that it would be hard to prioritise and consider them all. Wada et al's basic plea is for the inclusion of a social conscience into the predominantly hard science approach with a resultant philosophy to be "included within the growing ecosystem management approach" (1998:891). Dale et al and Spalding specify the need to include a degree of fluidity in the important elements of time, species interaction, size and cultural history of a site. Trudgill, Scott and Oates acknowledge that the linguistic turn is vital in respect of terminology used and arguments waged in the important area of persuading

professionals and public alike as to best practice and policy direction. Lautenschlager views prioritising local natural “resources of concern” through his “identify the specifics” approach as central to providing a successful methodology for species conservation. Munton’s work revolves around the awareness of the government and scientist’s role in exacerbating the reluctance of humankind to respond decisively to growing evidence of resource depletion and environmental deterioration (1997:148-159).

Oates appeals for acknowledgement that personal and societal values change and thus should be a part of a fluid decision making process (2006:91). Scoones and Spalding regard environmental cultural history of specific sites as vital ingredients in creating site strategy whilst the influence of the mass media on personal and institutionalised philosophy is central to Harrison and Burgesses work. The modern powerful medium of technology contributes to “fundamental changes in human consciousness and subjectivity” (1994:291). Evans’s work on the Black Country BAP has significance in its similarity to Cornwall. The presence and importance of local expertise and partnerships creating a “path dependency” allows for a successful implementation of biodiversity and land management subjugating global rhetoric to a supporting and advisory role. The uniqueness of Cornwall’s and specifically the Lizard’s habitats in addition to the awareness and inclusion of the continuing practices of historic land management give the management of biodiversity and land a unique Cornish flavour. There are a large number of informed professionals working within a historically efficient data gathering and dissemination system in situ. Multi designated sites with their complimentary strategy plans relegates global rhetoric to a less prominent and influential role than it might be in a less unique and well informed environmental working infrastructure.

The influence of global environmental rhetoric on local biodiversity and land management has also been detected through the interviews and the questionnaire. Results indicate that global rhetoric although important remains more of a guiding principle that frames the work done. Locally there is a reliance that those further up the agency or government hierarchy have designed and included methodologies for successful implementation of national and international statutory and non statutory

aims and objectives within the strategy plans intended for local implementation. What transpires is a local interpretation of the “*higher*” plans where more importance is attached to local knowledge and expertise, historic engagement with the land and landowners and the efficiency of local data gathering, processing and dissemination. This results in more of a ground upwards approach as opposed to a trickle down effect. For Cornwall, strategy implementation relies more on local “path dependencies” of expertise and knowledge (Evans 2004:277) than the utilisation of global and national rhetoric, which is used purely as guidelines in proactive management (interviews 2007).

The pertinence to Cornwall of the whole global to local environmental rhetoric discourse is the cultural values each individual country shares through its relationship with its habitats and biodiversity. As an example, for the majority, the chough remains an important symbol for Cornwall. For the informed it is the Cornish Heath (*Erica vagans*), the Helford River eel grass beds and the fringed rupturewort (*Herniaria ciliolata*). People within any country have a shared sense of place, cultural heritage and social relationship with its landscape (MEA 2005:40). If it is accepted that the uniqueness of the Cornish landscape and especially the Lizard produces unique biodiversity, it would be a valuable exercise to examine identity and biodiversity in a Cornish context at greater length.

One consequence of neglecting to explore the environmental social scientific narrative in New Cornish Studies is the missed opportunity to explore the argument that certain geological and biodiversity elements define Cornwall as much as the often used symbols of engine houses and St Piran’s flag. The argument made earlier for endorsing new cultural symbols from Cornwall’s geology and biodiversity such as Kennack Gneiss and the Cornish Path Moss originate from an awareness of the interrelationship the Cornish have with their physical environment. All of Cornwall’s biodiversity have been monitored and conserved through a duality of scientific data and interpretation of strategy on personal and partnership levels. This validates Scoones “interaction between two perspectives” of “socially constructed perceptions and representations and real processes of biophysical change and ecological dynamics” (Scoones 1997:497).

This dissertation has concentrated on the professional workers involved in biodiversity and land management and the importance of their local knowledge and partnerships. The Cornish perspective also involves both an interaction with the general public and the historic interrelationship the professional bodies have with those living in Cornwall whether landowners or public. It has been shown that NE and NT's work is influenced through these relationships. It has been noted that there is a feeling of being "enmeshed" with the lives of the Cornish. Over the past hundred years, Cornwall has become a mass tourism destination, creating a historic and mutually dependent relationship with its millions of visitors.

But is there a fundamental reason for the change in attitudes to and the rhetoric relating to nature? The thrust of this dissertation has been to note that there has been an exponential increase in environmental social scientific theory. New Cornish Studies has neglected engaging with the growth of the interdisciplinary narrative of New Ecology. Scoones examines the "conceptual and methodological common ground" between the natural and social sciences looking at the "prospects for and challenges of new types of interdisciplinary interaction" (1999:480). Maybe it is time that Cornish academic studies literally grasp the nettle and engage with the groundwork that has been done globally, on a local level.

### Glossary

‘Sustainable use’ means the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations

‘Biological diversity’ means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

‘Habitat’ means the place or type of site where an organism or population naturally occurs.

‘Ecosystem’ means a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

‘Genetic resources’ means genetic material of actual or potential value.

‘Rhetoric’. “Public deliberation about matters of policy” (Waddell 1998:xi). Aristotle saw rhetoric as an enquiry into “things about which we make decisions” (1998:xi). For the purposes of this dissertation this must apply to environmental policy. For rhetoric to be effective and in this case environmental rhetoric, it must go further than just producing a canon of literature, it needs to be incorporated into social, political and economic policy effecting “consequential social changes” (1998:xi). Rhetoric remains “an invaluable resource” for eco philosophers, environmental ethicists and policy makers alike (1998:xviii).

The Commission defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (WCED 1987:1). *The Convention on Biological Diversity* states in Article 1 that its objectives “to be pursued in accordance with its relevant provisions,

are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding”.

AGLV	Area of Great Landscape Value
AGSV	Area of Great Scientific Value
AONB	Area of Outstanding Natural Beauty
BAP	Biodiversity Action Plan
CBD	Convention on Biological Diversity
CBI	Cornwall Biodiversity Initiative
CCC	Cornwall County Council
CoaST	Cornwall Sustainable Tourism Project
COP	Conference of the Parties
CWT	Cornwall Wildlife Trust
EN	English Nature
ERCCIS	Environmental Records Centre for Cornwall and the Isles of Scilly
KDLP	Kerrier District Local Plan
NE	Natural England
NNR	National Nature Reserve
NT	National Trust
OALS	Open Areas of Local Significance
RIGS	Regionally Important Geological/Geomorphological Site
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SCI	Sites of Community Importance
SKA	South Kerrier Alliance
SNA	Strategic Nature Areas
SPA	Special Protected Areas
SSSI	Site of Special Scientific Interest
SWRA	South West Regional Authority
UNCED	United Nations Conference on Environment and Development
WCED	World Commission on Environment and Development

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