
THROUGH A FORAGING LENS
*Legal, Economic and Social Change in
England*

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Abstract

Foraging is a popular modern pastime, as evidenced by the growing number of books, television programmes and websites dedicated to wild foods. Yet foraging - that quintessential activity of early man - is no longer relevant to our survival, nor is it even of peripheral importance to our social and economic system. It may still hold meaning for our psychosocial wellbeing, but only in ways that illustrate our disassociation from the past, rather than our connection to it.

This thesis begins by examining the biological imperatives that once drove foraging behaviours but that now have a negligible effect on most of humanity. It then moves to examine the legal and historical contexts in which the harvests take place and the life experiences of the people who have gathered wild foods. Today, we still cling to the long-established ideal that wild foods are 'inherently public property,' or free for all to gather for personal use. The environment in which the process takes place, however, is profoundly changed: the institutional setting is hostile and there has been a wholesale loss of general knowledge as to the location and use of foods that were once core to our diet.

Those foraging today - often middle aged, well educated women – continue to gather for a complex array of personal reasons, and do so irrespective of prevailing laws and in spite of conservation issues. This research finds that the wild harvest today is a socially and culturally negotiated symbol tied to perceptions of the self, identity and sense of place. The transformation of the symbolic meaning of foraging is highlighted via an analysis of the social history of the bilberry harvest and through the narratives of bilberry gatherers and heath land wardens, both of which reveal the unravelling of the social nexus in which the harvest once occurred. The thesis concludes with a call for a food culture that suits our landscape and ecology and that reconnects us with the food that sustains us.

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CHAPTER ONE: INTRODUCTION

“To gather, of course itself means both ‘to collect’ (for example fruits) and ‘to understand’. So we gather”.

-J. Griffiths, *Wild: An Elemental Journey*, 2007, p. 25.

1.1 GATHERING UNDERSTANDING

As with Jay Griffiths, this thesis was a quest. However my quest was not a deep-seated, elemental desire to touch the wild. Instead, I hoped to continue my life-long intellectual journey: to find “new horizons” and, like Griffiths,

to be a student always, to discover new lands, leaving behind some rock of certainty, to wander without doxy, letting the mind wander till it surprises itself (Griffiths: 314).

The rigours of a PhD would provide my compass, but the motivation was something much more personal.

As a child, for at least a few days every August, I gathered blueberries with my father and grandmother. The day would begin early, with a long walk from the roadside where we had parked the car. We climbed slowly out of the valley, the sun growing steadily warmer and the trees thinning until stretching out before us were thousands of acres of mountain moorland called the Graveyard Ridge, which was literally covered in blueberry bushes. We would deposit our things on the big slabs of rock at the top - called “balds” by my grandmother - and everyone would scatter, finding their own way amongst the bushes to harvest the biggest and the ripest.

Spontaneous breaks were taken to deposit a full bag of berries, for water or a snack, or to just sit and watch a bird of prey soaring on the thermals overhead. Reclining on a “bald”, my grandmother would tell stories of a long life, lived simply and remembered well. I can still see her pausing before beginning her tale: she would first wipe her purple-stained hands on her skirt, as if clean hands were necessary to retell a story. Leaves and spider

web remnants stuck higgledy-piggledy from her wild gray hair and rivulets of perspiration ran down her lined face. As the eldest of eight children, she had helped to see her family through the Great Depression by gathering what we would today call 'wild foods'. She knew every edible or useful plant on the mountain and every plant seemed to have its own story.

The ritual gathering continued for many years, but eventually my blueberries came solely from the supermarket and I could recall only the most basic of roadside foodstuffs. In less than a generation, I had forgotten. That fundamental knowledge of what to gather, what to eat and what it all meant that stretched back through time to my earliest ancestors was lost to me. My connection to the mountain was reduced to a nostalgic vista redolent of a flat screen television – close to the eye but impenetrable. When ultimately I moved away to start my adult life, the last thread weaving me into my childhood landscape was severed.

Intuitively, I knew that there must be many people out there with sentiments similar to my own, and I wanted to know if this profound disconnect meant as much to them as to me. I also wanted to know how such a fundamental change came to pass – and to pursue this question down every available intellectual avenue, using every tool to hand. The ultimate objective was to pursue this wide area for the remainder of my professional life, and thus to provide a thorough theoretical grounding for many, many years of future study. It is with this premise that this thesis begins.

1.2 FORAGING: PEOPLE, PLANTS AND SOCIETY

Gathering plants was once central to the survival of every individual in Britain and, until recently, many of us relied heavily on gathered plants for sustenance¹. Bands of hunter-gatherers meandered across the landscape in search of edible leaves, roots, nuts and berries and foraging for food was part of a strategy for survival and reproductive success (O'Connell and Hawkes 1981; Cronk 1991; Smith and Winterhalder 1992; Giraldeau and Caraco 2000; Wickham-Jones 2011). However, as Ray Mears reminds us in *Wild Foods* (2008: 28): "It is tremendously important to understand that our ancestors weren't just using plants for food – food would have had a much more significant role in their everyday lives than the archaeology can show us today."

As hunter-gatherers turned inexorably toward agriculture, the use of foraged plants steadily declined. Plants gathered from the wild were never again to have the same significance to an individual's diet – or to their life. Spencer Wells (2010) maintains that the rise of agriculture 10-12,000 years ago created a mismatch between our biology and the conditions of life in the modern world. Over time, foraging became merely a way of supplementing the staple foods that life in an increasingly settled agricultural society provided. Foraged food has occasionally returned as an important part of our diet: for instance, during times of famine or during wartime shortages. Yet modern life is now so far removed from the land that foraging, where it occurs at all, is rarely more than a hobby or pastime. And though we do still

¹ For example, food middens and other food remains at Boxgrove near Chichester have been dated back to 500,000 years.

sometimes recall to “plant rituals” and “mystical gestures” (Mabey 1996), we do so more in literature than in life.

Today, where gathering plants is primarily a leisure activity rather than a necessity, being able to forage remains nevertheless important to many people. The popularity of wild foods has increased over the last few decades, with a large number of books², articles³ and television programmes⁴ being dedicated to foraging for wild foods. There is also a movement to recover the traditional knowledge of plant usage⁵. The regeneration of knowledge, however, is occurring in a wholly new socio-economic and ecological context.

This thesis began with the personal question of how an activity that was once so basic to human existence became so marginal and what this transformation has meant to us as a people and a society. The research questions that emerge from this initial enquiry are designed to explore how foraging has changed through time. The first question inquires as to how modern foraging behaviour differs from that of the past and hunts for terms of reference and theoretical frameworks to help in mapping these changes. The second research question examines the institutional context, notably the historical impact of the law, and how people today interact (or not) with the institutional environment surrounding foraging.

² Numerous books have followed Richard Mabey’s famous 1972 book *Food for Free*. Important proponents, to name just a few, include: Roger Phillips, Alys Fowler, Susan Allport, Ray Mears, Fergus Drennan, Miles Irving, Marcus Harrison, Gordon Hillman, Susan Campbell, Pamela Michael, Jane Eastoe, Hugh Fearnley-Whittingstall, Caroline Conran, Andy Overall, Jane Wheatley, Nikki Duffie, Steve Coffey and John Wright.

³ Refer to n-gram data, Chapter 7.

⁴ There have been an increase in the television programmes devoted to foraging over the past decade including those hosted by: Bear Grylls, Hugh Fearnley-Whittingstall and John Wright of the River Cottage, Ray Mears, Miles Irving, The One Show, Fergus Drennan, Fiona Houston, Xa Milne and Matt Tebutt.

⁵ Including books such as M. Jordan’s *The Green Mantle* (2001), D. Podlech’s *Herbs and Healing Plants* (1996) and the comprehensive *Medicinal Plants in Folk Tradition* (2004) by Allen and Hatfield.

The next two questions pursue themes emerging from the earlier research and follow the evolution of meaning. Thus, the third question seeks to identify the 'modern forager' and his or her individual activities and perceptions. A Survey elicits details about the modern forager such as: Who is foraging in England today? What are the types of plants commonly picked? What are the perceptions surrounding the institutional environment? The final question pursues understanding of the symbolic meaning of foraging for individuals and how this is changing through time. Using one particular wild food, the bilberry, it explores in detail the meaning of the process of gathering; the social, cultural and ecological nexus surrounding the harvest and how this nexus has changed. This thesis concludes with an integrative discussion of the phenomenon of modern foraging – and leaves the reader with a proposal for a radically 'anthropogenic' approach to our future 'foodscapes'.

CHAPTER TWO: RESEARCH PARADIGMS, PERSPECTIVES AND METHODOLOGY

“Whoever undertakes to set himself up as a judge in the field of Truth and Knowledge is shipwrecked by the laughter of the gods”.

-Albert Einstein, *Ideas and Opinions*, 1954, p. 27.

2.1 INTRODUCTION

The aim of this thesis is to explore plant foraging in England through time and how its changing relevance illustrates the social, economic and ecological transformation of society. Given that this is a novel area of research, it has few intellectual shoulders to stand upon. Therefore, this exploration has to evaluate potentially applicable existing theories as well as generate new concepts. Accordingly, the most rational investigatory approach would sit within the Grounded Theory (GT) tradition (Glaser and Strauss 1967; Charmaz 2000). GT is also particularly attractive in connoting “a frame of mind – an intent to be open to everything unknown [...]” (Charmaz and Mitchell 2007).

In using this approach and adopting the corresponding frame of mind, the researcher effectively becomes a *bricoleur*, “a Jack of all trades or a kind of professional do-it-yourself person” (Levi-Strauss 1966: 17). Flexible perspectives, a range of methods and a variety of sources help to add rigour and depth, thereby allowing a richer understanding to emerge (Denzin and Lincoln 1998; Charmaz 2000; Flick 2009). Moreover, a mixed methods, interdisciplinary approach is essential in exploring this unmapped area – and for my own personal development.

From this constructivist approach, Symbolic Interactionism emerges as a natural theoretical perspective, and is explored in Section 2.1. Section 2.2 provides justification for the use of mixed methods and Section 2.3 introduces the particular methods selected and how these are employed in the thesis

structure. Details of specific methodological tools are occasionally reserved for later, as in Chapters Five and Six. Section 2.4 concludes the chapter with an overview of the limitations and ethical considerations connected with the study.

2.2 SYMBOLIC INTERACTIONISM AS A RESEARCH PARADIGM⁶

The epistemological approach of this thesis is constructivist, in that it views the knowledge surrounding the foraging process as the co-creation of multiple actors in a variety of fluid contexts (Schwandt 1998: 236; Denzin and Lincoln 1998; Strauss and Corbin 2008). Foraging is consequently both a social artefact (Gergen 1985) and something emergent (Schwandt 1998:236; Denzin & Lincoln 1998; Strauss & Corbin 2008). Symbolic Interactionism (SI) provides a natural foundational perspective, since, as maintained by Charmaz and Mitchell (2007: 160), a “constructivist approach to grounded theory complements the symbolic interactionist perspective because both emphasize how action and meaning are constructed.”

The SI perspective arose as a pragmatic reaction against biological determinism that ascribed an animalistic, learned response to human behaviour (Rock 2001). A relevant example can be found in the emergence of language in that communication may have arisen, not simply from genetic variation, but out of the evolution of the panoply of skills needed in hunting and gathering societies, such as cooperation, coordination, and contingency planning (Burling 2007: 184 as cited in Rock 2001). Such cultural evolution continues, with the symbolic paradigms becoming ever more complex – in line with the societies we inhabit. Thus, the SI approach assumes that humans assign meaning to things through experience and interpretation and that they

⁶ A more extensive exposition of SI is given in Section 5.1 below.

do so continuously and interactively (Mead 1936, Rock 2001:27; Musolf 2010).

2.2.1 The Origin of Symbolic Interactionism

Symbolic Interactionism is now deployed in a wide variety of disciplines (Benzies and Allen 2001; Favreau 2009), but has its origins with the Scottish moralists of the 18th Century, who posited that people construct their world based on their own individual perceptions and it is this which influences their behaviour (Blumer 1969; Charon 1995). Henry James's (1842-1910) explorations into human instinct formed part of the early approach. He maintained that each individual's social self was "plastic" and influenced by past experiences as well as by those who were observing them.

George Herbert Mead (1863-1931) was an early explorer of the concepts of the "mind" and the "self" and extended James's work. Mead, a founder of pragmatism, believed that the mind and the self emerge through a social process of communication. For Mead, thought is symbolic behaviour and is actively created (Charon 1995). Herbert Blumer (1900-1986) put Mead's work into a theoretical system and coined the rather awkward term "symbolic interactionism" (Charon 1975). Blumer's approach became known as the "Chicago School of Interactionism" (Meltzer et al. 1975) and focused on understanding the subject's world and the "processual nature of human behaviour" (Benzies and Allen 2001: 543)⁷.

Blumer (1969) asserts that human beings are purposive agents who engage in self-reflection and constantly interpret the world they inhabit. This

⁷ Minford Kuhn (1911-1963) developed the "Iowa School," involving a more structured approach that built upon testable hypotheses of social behaviour (Kuhn 1964; Benzies and Allen 2001). He brought in openness to empiricism that actively utilized a wide range of data collection methods.

view has been subject to considerable refinement and criticism (see Denzin 1989), but for the broad purposes of this thesis remains applicable. Symbolic Interactionism posits three basic premises, which can be directly translated to this research (Blumer 1969: 2). Human beings act toward things on the basis of the meanings that these things hold for them (Blumer 1969; Herman and Reynolds 1994). These “things,” or symbols, broadly include everything that a human being may notice, be it physical, social, ideological or other (Blumer 1969: 10; Aldiabat and Le Navenec 2011). The thoughts and actions that form these symbolic meanings are “directed by identifiable thinkers towards specific problems located within a discrete historical, autobiographical and social context” (Rock 2001: 28). Therefore, meaning does not emerge from the thing, but rather derives from an interaction with other people over time- and as such is a social product (Blumer 1969: 4, 5; Charon 1979).

2.2.2 Foraging - A Tableau of Socially Constructed Meaning

We cannot understand the importance of foraging, nor evaluate how this might have changed over time, by regarding it solely as an activity to be observed. We also cannot take meaning as it is formed in the context of social interaction and simply apply this to the individual. Rather, a symbol is itself the product of action that arises from the imagination and is constantly re-evaluated in the context of the mind and the environment (Rock 2001: 28). Accordingly, foraging is an interactive process forming a tableau of socially constructed meaning (See, Lincoln and Guba 2000). The SI perspective is essential for an ever-deeper evaluation of the complex factors surrounding foraging: the individual emotional, psychological, social, economic and institutional factors (Robinson 2009), as well as those associated with place,

and social memory (Halbwachs 1992; Connerton 1998; Stedman 2003; Nazarea 2006; Riley 2010).

The meaning of foraging, borrowing Charmaz's pragmatic, constructivist terminology, can be "local, relative, historically based, situational and contextual" (Puddlephutt 2006:9; see also Charmaz 2006). Thus, in attempting to understand its symbolic import, we must not only be aware of the context in which this harvest occurs; be able to identify the institutions that influence it but also, importantly, be able to glimpse the spectrum of meaning that it held for particular individuals over time (Charmaz 2006).

2.3 A MIXED METHODS RESEARCH STRATEGY

Through an SI perspective, a Grounded Theory approach to collecting information (Glaser and Strauss 1967; Charmaz 2000) allows for the identification of issues of relevance to the evolution of foraging behaviours and the institutions that surround them. These issues – and new ones that emerge through the process - can be continuously evaluated using targeted combinations of quantitative and qualitative methods. As noted by Flick (1998: 231), the use of a variety of methods helps to add "rigour, breadth, complexity, richness and depth" to complex research projects. Thus, data collection via a variety of methods promotes a rich exploration of the social, economic, environmental and ecological changes in foraging practices – and of the associated co-constructed meanings of these practices for individuals (see, e.g. Eriksen et al. 2011 and their experience of using mixed methods in exploring natural hazards research).

A mixed methods research strategy contains a variety of approaches and methods to answer complex, interdisciplinary research questions

(Henwood and Pidgeon 2003; Charmaz 2006). For this thesis, the qualitative and quantitative methods were specifically selected to provide the best opportunity for addressing the research questions (Johnson and Onwuegbuzie 2004). The 'bricoleur' approach encourages the use of questionnaires, statistics, case studies, narratives, thick description, archival and anecdotal research in chasing understanding.

The Survey and subsequent statistical analysis provides useful, objective information from which numerous significant issues and concepts emerge. The data derived also helps corroborate several emergent concepts concerning theoretical foraging behaviours and institutions. However, the knowledge derived is also "too abstract and general for direct application to [the] specific local situations, contexts and individuals" of interest (Johnson and Onwuegbuzie 2004). Thus, though the quantitative data can serve as a focal point for the more culturally nuanced and personal qualitative data (Kelle 2006), an array of qualitative techniques are needed to grapple with the processes, experiences and meanings explored in the latter stages of the study (Denzin and Lincoln 1998; Lincoln and Guba 2000; Silverman 2001; Flick 2009; Butler-Kisber 2010).

This GT approach, employing a combination of quantitative and qualitative techniques, provides multiple vectors for the emergence of key issues and concepts. Yet mixed methods may also help in validating concepts or corroborating findings, something increasingly advocated by researchers using symbolic interactionism (Guba and Lincoln 1985; Ulmer and Wilson 2003; Charmaz 2006). As declared by Rackham (2003: 16), "[b]y combining several kinds of evidence, we reduce the risk of bias in any one

source.” Unfortunately, it is impossible to remove bias in such a free-ranging approach as is taken here, and Mannheim’s paradox (1936)⁸ is ever present, but we can attempt to account for this bias. By using mixed methods, we can at minimum cross-reference – and cross-fertilize – by taking ideas generated in one study and evaluating them against another (Greene et al. 1989).

Ultimately, by studying the same subject in a variety of ways, we can hopefully acquire processual understanding in complex contexts, greater depths and with a richness that would otherwise not be possible. In summary, the continuous cycle of observation and reinterpretation is a key to good research. The approach taken in this thesis ensures that the findings are a transparent and literal construction of the inquiry process, which, when exposed to critical challenges and reanalysis, will still resonate with the data.

2.4 THE METHODS DEPLOYED AND THE THESIS STRUCTURE

By taking a GT approach, the theoretical and methodological approaches remained in a state of flux for a considerable portion of the research time frame, so the following description of methods and structure is less linear than it appears. Nevertheless, the initial research question concerned the disconnection between the modern forager and his hunter-gathering predecessors and required, first, an understanding of the biological drivers for foraging. Optimal Foraging Theory (OFT) has long been successful in describing animal and human foraging behaviour (Charnov 1976; Stephens and Krebs 1986). Foraging for food was part of a strategy for survival and, to some extent, for improving an individual’s reproductive chances.

⁸ Karl Mannheim declared in *Ideology and Utopia* (1936) that “the investigator of culture is himself cultured, and a person’s cultural past colours everything that he or she perceives.”

Thus, the thesis opens with a theoretical exploration of modern foraging behaviours that provides key concepts and terms of reference for subsequent elements of the thesis. By employing this theoretical construct and a series of field tests, modern human foraging behaviour can be observed departing from the biologically- based behaviours of hunter-gatherers and emerging as a product of cumulative culture, with food choices deriving from – and affected by - social learning.

This is followed with an inquiry into the institutional context of our evolving foraging culture. By evaluating cases, exploring legal archives, and analyzing legislative histories, Chapter Four reveals how the law evolves incrementally within the society it serves. The legal institution surrounding foraging emerges not as a driver of change, but rather as a reflective lens for understanding the changes as they occurred.

These initial theoretical and historical lenses reveal the changed role for foraging in modern society, but cannot tell us why people still gather – or for what. Accordingly, Chapter Five uses quantitative and qualitative data generated through a series of questionnaires (and further discussed in 5.2) to profile the modern forager, the wild foods that he or she gathers and the environmental and ecological context in which the gathering takes place. The *Wild Foods Survey* provides a limited data set for identifying modern foragers and the foods that they gather and provides corroborative information for several concepts generated elsewhere in the research. Importantly, the Survey highlighted the variety of personal experiences and meanings embedded in the foraging process that now act as a modern proxy (of what is

'optimized') for the nutrients and reproductive success of the Optimal Foraging model.

Chapters Six and Seven delve more deeply into the themes and concepts that have emerged from the earlier stages of the research – and generate many new themes and concepts in the process. In Chapter Six, historical archives, narratives and case studies are used to explore individual histories and the associated perceptions of identity, belonging and meaning surrounding the specific foraging practice of bilberry gathering. The nature of the perspectives, methods and techniques of analysis are fully explained in 6.1. Chapter Seven builds upon the learnings of the previous chapters and employs a variety of sources, measures and techniques to map what we now understand about the phenomenon of modern foraging – and what role it may have in our future Anthropogenic eco-system.

2.5 LIMITATIONS AND ETHICAL CONSIDERATIONS

Taking a mixed methods approach clearly made sense in the context of this research. However, as with any paradigm, it has its drawbacks. As cautioned by Morse et al (2006), one method (the qualitative) quickly came to dominate the other (the quantitative). The quantitative data garnered from the Survey was occasionally relegated to a 'support role' in that it either elicited questions that were then followed up through the qualitative research or it was employed in clarification or triangulation of the qualitative data. In concord with Kelle (2006), a follow-up quantitative study may be helpful in validating the findings and allowing for greater generalizability and this should be considered as part of future research into the subjects addressed in this thesis.

Though a detailed discussion of methods and analysis is reserved for each of the respective enquiries below, I must address how I may be responsible for the heavier weighting of the qualitative versus the quantitative methodological approaches. Butler-Kisber (2010) declares that in selecting to use qualitative methods of enquiry, it is most essential that the results be “trustworthy,” in that the research is conducted in a coherent and transparent way and that potential bias and assumptions are obvious to subsequent researchers. The origin of this research is my interest in wild foods and human ecology and this may have affected the formulation and positioning of the research questions. I quickly became fascinated with “meaning” and aware of how limited purely quantitative data is in garnering subjective data.

However, as a trained lawyer and economist with little prior experience conducting this kind of research, my initial approach to the research questions was dispassionate and neutral. I had no personal or professional stake in any philosophical, theoretical or methodological platform, and no personal feelings regarding the specific findings of this research. Nor was I constrained by career considerations or publication pressures. Rather, I wanted simply to learn and to apply the most relevant methods in doing so. This was a particular draw for adopting a GT approach.

As detailed specifically in subsequent chapters, I have attempted to minimize my bias where possible and account for it transparently where I cannot do so. In approaching research from Symbolic Interactionism perspective, the researcher plays a role and so I must be sensitive to the subjects of the research and empathetic in a variety of social settings. This research does not involve obvious areas of individual sensitivity, though they

were occasionally encountered. Nor does it involve any situations that might involve illegality or obvious ethical dilemmas. However, it does involve interacting with a wide variety of individuals of differing social backgrounds and life histories and therefore requires a degree of educated sensitivity as well as data collection techniques that will minimize bias. This is discussed much more fully where it is relevant in the text, especially in Chapter Six.

All of the University's guidelines regarding ethical data collection were followed: all participants were given an information sheet about the nature of the research and their participation in it. They all signed consent forms authorizing the use of any data collected, subject to the usual provisos. Though my relationship with some of the participants was informal, this contributed to the acquisition of data and in no way disempowered the participants. No laws, rules or University regulations were broken during the completion of this thesis and I am confident that at no time have I undermined my own very high ethical standards.

CHAPTER THREE: FORAGING BEHAVIOURS, THEORETICAL AND EXPERIMENTAL

“May it not be the case that the cultural evolution of the human species has carried it into a realm where biological laws are determinative of only a minor fraction of behavioural phenomena?”

J Hirshleifer, *Economics from a Biological Viewpoint*, 1977, p. 2.

3.1 INTRODUCTION

Understanding the reasons for changing foraging behaviours is not a straightforward endeavour, but exploring how these behaviours have changed through time can nevertheless help to reveal the ways in which modern individuals differ from the subsistence animals that we once were. A theoretical exploration of modern foraging behaviours may help to put this transformation into context. The field of Human Behavioural Ecology focuses on the influence of environment and ecology upon human behaviour (Cronk 1991; Smith and Winterhalder 1992) and has been applied to broad areas of foraging behaviour (O'Connell and Hawkes 1981; Winterhalder and Smith 1981; Hawkes, O'Connell et al. 1985; Hill and Hurtado 1996; Volland 1998; Alvard and Gillespie 2004; Mace and Eardley 2004; Bock 2005). In general, according to Giraldeau and Caraco (2000), under the pressures of natural selection, animals attempt to optimize their reproductive success and will adapt rapidly where environmental, ecological, social and political parameters change.

More specifically, according to Pyke (1984: 541), “[t]he general aim of optimal foraging models is to determine the optimal decision rules.” Thus, numerous decisions can be evaluated: what to eat and where to look for it (Prey and Patch Choice Models); how long to forage (Patch Choice and Marginal Value Theorem); issues involving the processing and transportation of food (Central-place Foraging Models).

However, all of the optimal decision rules used in OFT are based upon the assumption that foraging is being undertaken in order to maintain the forager's life, through subsistence gathering. As will be shown, this is not the case for the modern forager, and thus, Optimal Foraging Theory cannot be used for the modern forager as a predictive model. However, an application of tenets and assumptions of the theory can nevertheless provide us with tools for evaluating behaviours.

Chapter Three begins with an overview of Optimal Foraging Theory as it has been applied to animals and human subsistence foragers. It progresses to a critique of the general theory and then to the applicability of optimal foraging models for modern foraging behaviours. This allows for a differentiation between the usual focus of Optimal Foraging Theory as applied to subsistence foragers, and those that this thesis is more concerned with - non-commercial foragers of wild plant foods.

Whilst most of Chapter Three involves a theoretical analysis, certain aspects are explored through a series of field tests. These tests of modern berry harvesting, conducted over a four-year period, provide limited, quantitative and anecdotal support for the theoretical conclusions. By using optimal foraging theory as a lens, we can state that non-commercial modern foragers do not fit the theoretical profile of individuals that are foraging with a view towards survival or growth or those that are foraging in an effort to ensure reproductive success. These models can nevertheless help in understanding the nature of modern foraging behaviour and the complex inter-relationship between the forager, society and the environment today.

3.2 AN OVERVIEW AND CRITIQUE OF OPTIMAL FORAGING THEORY

Optimal Foraging Theory (OFT) evolved out of the work of John Merritt Emlen (1966), Robert MacArthur and Eric Pianka (1966), who posited that animals attempt to feed not only efficiently, but optimally. That is, they try to consume as many calories as they can during the time they spend foraging. This means that the choice of a foraged food depends not upon the abundance or scarcity of particular foods, but rather upon the particular caloric or nutritional needs of the animal doing the foraging. The optimization models thus attempt to evaluate the differing strategies an animal might pursue.

As applied to humans, the models aim to predict the behaviour of people whilst they are foraging and to specify a set of rules based upon cost-benefit considerations derived from natural selection (Pyke 1984). The model assumes that most foragers wish to maximize energy consumption subject to specific nutritional constraints and most applications of the model have attempted to predict the foraging strategy that will result in an animal's optimal diet over a given period of time. This is most simply illustrated in Charnov and Orians (1973) and Stephens and Krebs (1986) as follows:

E = total calories acquired whilst foraging

T = total time spent foraging; t_s = unit of search time

e_i = energy available in a unit of resource i

h_i = handling time per unit of resource i

r_i = units of resource encountered in a unit of search time, t_s .

By definition, $T = t_s + e h_i r_i t_s$. Thus, according to the model, a forager should maximize the mean foraging return rate:

$$E/T = \frac{e r_i e_i t_s}{t_s + e r_i e_i t_s} = \frac{e r_i e_i}{1 + e r_i e_i t_s}$$

So a food (f) should only be eaten if $E/T < e_f/h_f$. and $E/T > r_f e_f / r_f h_f$ or $E/T > e_f/h_f$. Thus, the optimal diet rule is that the net rate of energy gain should be greater than the energy available in a unit of food / the handling time per unit of food. The forager should ignore any food item that reduces the mean foraging efficiency. This implies *ab initio* that foragers rank food according to energy (e/h) and will take food on this basis, irrespective of how often they encounter it.

Over the past forty years or so, the general features of the theory have taken shape in the literature. Smith et al (1983) summarize the main features of OFT as follows:

1. Foraging behaviour derives from natural selection in response to changing conditions. Thus, over time these behaviours should tend to yield the greatest possible benefit for the individual forager's survival and reproductive success. This involves an assessment of the costs and benefits of decisions, and, in order to assess these, requires an assumption that successful foragers behave "so as to maximize the net rate of return (of energy or nutrients) per unit of foraging time". This behaviour holds in a variety of conditions: food shortages, nutritional shortages, time constraints (opportunity costs), and risk exposure.
2. Optimization methods are used to build models of foraging. As Smith et al point out, this approach was initially quite controversial, but has gained acceptance as a starting point or short cut to understanding behaviour (Sahlins 1976; Maynard Smith 1978; Lewontin 1979; Gould and Lewontin 1979). The method defines the organisms' goal or goals, the range of choices available, the currency used to evaluate those choices,

and the various constraints affecting those choices (Smith, Bettinger et al. 1983; Stephens and Krebs 1986).

3. The use of mathematical and graphic representations to “reduce the complexity of real-world constraints and options to a limited number of sufficient parameters”. The representations are simple and include parameters to represent environmental and physical constraints and also parameters representing strategic options.
4. The extension and simplification of the analysis into discrete decision categories such as patch choice, prey choice, time allocation, group size, and settlement location. Optimal diet models describe diet choice. Patch choice models extend the original model to consider the search paths that foragers might take. Other decision categories are added to the original model according to the particular behaviour being explored.

3.2.1 The Irrational Gatherer

Human ecologists and traditional neo-classical economists generally assume that people have rational preferences among identifiable outcomes, that they seek to maximize nutrition or reproductive success and that they act independently on the basis of complete and relevant information. The first feature in an OFT model implies that human foraging behaviour is rational. Yet whilst rationality is a useful theoretical construct, this approach is not easily applied to a modern foraging environment. We know that people often do not act rationally.

The “rational man” approach generally ignores the source and content of preferences; choosing to take tastes as “given”. The evidence is now overwhelming that individual actions are often affected by the actions of others and taken without full information (Knight 1921; Sen 1977; Steele

2005; Dugatkin 2009). We also know that some drives or tastes do not operate to optimize fitness. Thus, the assertion that individuals are in *homeostasis* wherein they act according to given constraints to ensure optimum functioning, survival or to maximise reproductive opportunities is too limiting, at least with respect to complex modern behaviours where the drivers of that behaviour are not identified.

Stephens and Krebs (1986) and Gould (1980) remind the theorist that these limitations inhibit the application of Optimal Foraging Theory. Humans do not always attempt to maximize the energy return rates from foraging, even in hunter gathering societies. Hill and Kaplan (1988) demonstrated that, in simple optimal diet model predictions, many of the resources taken by foragers do not have higher rates of return. Foragers do not always opt for an optimal selection of nutritional benefits, either (Hill 1988). We cannot take an animal's food preferences as a given. To do so requires, at the very minimum, a full understanding of animal's diet and nutritional needs⁹. Bruce Winterhalder discovered in his research into the dietary habits of the Cree Indians that a human forager will change what he or she forages as their level of development and nutritional requirements change, adding a significant level of complexity to each of the assumptions (Winterhalder and Smith 1981). Moreover, there is considerable evidence that harvest selection differs considerably between men and women and different age groups (Hill 1988; Hill and Kaplan 1988; Mithen 1989).

The assumption of complete and relevant information for foraging has also proved to be unjustifiable even from a definitional standpoint (Binford

⁹ However, models often deal with variable parameters and this is not necessarily an issue, at least where the limitations of the model are clearly explained.

1989). Animals can collect and store information whilst foraging and this can improve decision-making over time, but the initial assumption of full information weakens any conclusions derived from the model and goes to the heart of criticisms about whether an actors' behaviour is "rational."

Moreover, establishing the nature of information that is most relevant to the forager in the first place is not easy, and may be highly subjective. Is knowing the value of the prey or the patch most important? Or the alternatives forgone? Or both? This is a first step before addressing the even more difficult issues surrounding the variable characteristics that may be relevant in any particular environment. Without being able to answer these questions, it is difficult to assess whether an optimal foraging strategy for an animal exists. Where an attempt is made to answer these questions, this of necessity increases the complexity of the model and the scope of its predictive outcomes (Kacelnik and Krebs 1997; Ydenberg and Hurd 1998).

3.2.2 A Complicated Process

Keene(1983) has levelled another criticism at the theory for being limited to individual decisions and thus factoring out the complexity of social interactions. As noted in Lupo (2007: 173), there remains widespread disagreement amongst behavioural ecologists about the various "assumptions underlying human behavioural ecology, the forces that guide decision-making and the assumptions underlying foraging economics" (e.g. Cosmides and Tooby 1987; Symons 1987; Laland and Brown 2002).

The model is clearly limited in its analytical power in that there can be no theoretical baseline: a human subsistence forager is far too complex at the individual level with a unique history and varying motivations. The subjects of

most optimal foraging research rely on the gathered or hunted food sources for all or most of their sustenance. What of the modern forager who does not? For the modern forager in England, with a refrigerator at home and a cupboard full of food, ecological determinism as theoretically envisioned is not applicable.

In spite of these criticisms, an attempt at the application of OFT is nevertheless still justified. As noted at the opening of this chapter, Hirshleifer (1977: 2) asked whether:

May it not be the case that the cultural evolution of the human species has carried it into a realm where biological laws are determinative of only a minor fraction of behavioural phenomena?

Since 1977 when Hirshleifer's article was published, there has been considerable exploration into the aspects of human behaviour that lie beyond the realm of biological determinism¹⁰. Nevertheless, such theories – however imperfect, help “to simplify the real world by distinguishing between extraneous facts and informative data” (Bettinger in Smith, Bettinger et al. 1983: 640).

We can use Optimal Foraging Theory to explore patterns of foraging and inform decision-making about land use and conservation. We can employ the theory to test moment-by-moment decisions, such as when and why a modern forager decides to stop and gather plant-life. If it is not for survival, for reproduction or for some other biological imperative, why do it? What might the individuals be optimizing? These behavioural ecology approaches coupled with optimal foraging theory can provide insights into

¹⁰ See, for example, the work of Michael Ghiselin, Robert Trivers, Eric Charnov, Graeme Barker, Samuel Bowles, V.G. Childe, H. Barton and others. Or more popularly, Paul Seabright (2004). The Company of Strangers: A Natural History of Economic Life. Oxford, Princeton University Press.

history or adaptive changes made in society. Thus, as Bettinger (in Smith et al. 1983: 641) notes:

Even where these models fail to predict subsistence behaviour, they will sharpen our perception of the economic, political, and social structures that may take precedence over calorific efficiency in determining adaptive strategies.

3.3 MODERN FORAGING BEHAVIOUR – IN THEORY

The aim in this section is to use an optimal foraging model as a mechanism for exploring modern foraging behaviour. That is, to enquire into why modern foragers venture into the woods or onto the heath to gather plant life; to highlight changes from past perceptions of access, conservation and land use; to discover the theoretical nature of modern foraging behaviour.

David Stephens and John R. Krebs (1986) in *Foraging Theory* apply formal optimization techniques to hypotheses surrounding animal foraging. They dictated three components to their models:

1. Decision assumptions – which problems or choices are to be analyzed? Generally this boils down to what to consume or when to leave a “patch” where a food item is found.
2. Currency assumptions – how are these choices to be evaluated? How do we compare alternative values of the decision variable? Conventional models assume that the maximization of net energy gain, since obtaining the most energy (in the form of calories) for the least effort is generally better for the forager. Note that for every currency, there is a choice principle such as maximization, minimization or stabilization.
3. Constraint assumptions – what limits choices, and what limits the pay-off that can be obtained? We must assume that the forager cannot simultaneously search for patches and exploit items at the same time and that the forager acts as if he or she is fully informed about the environment and knows his or her limitations.

In general, for foraging animals, the optimization decisions relate to prey choice or patch exploitation; the currency of long-term average-rate

maximization (usually of net rate of energy intake); and the constraints to search and exploitation.

Table 3.1: Components of the Initial OFT Model (Derived from Smith 1983)

Decision Category	Strategic Goal	Domain of Choice	Cost-Benefit Criteria	Constraints
Diet breadth	Optimal set of resources to exploit.	Which types to harvest, once encountered	Return per unit handling time for each type, overall return on foraging (inc. search time)	Abilities of forager Encounter rates
Diet breadth with nutrient constraints	As above	Which and how many to harvest	Minimum cost for meeting nutritional needs + as above	Nutrient requirements, abundance of prey types, procurement costs.
Patch Choice	Optimal array of habitats to exploit	Which set of patches to visit	Average rate of return with patch types and average over all patches (including travel time between patches)	Efficiency ranking of patch types, habitat richness, travel time between patches
Time Allocation	Optimal pattern of time allocated to alternatives (patches, etc.)	Time spent foraging in each alternative	Marginal rate for each alternative, average return rate for entire set	Resource richness, handling times, depletion rates for each alternative
Settlement Pattern	Optimal location of home base for foraging efficiency	Settlement location of each foraging unit	Mean travel or search costs per unit of harvest	Spatiotemporal dispersion and predictability of major resources, effects of cooperation and competition
Individual Utility	Maximize utility	Which and how much of a food to harvest	Travel costs, search costs, handling time, carrying capacity	Travel time between patches, foraging abilities, abundance, quality

3.3.1 **DECISION ASSUMPTIONS: What, Where and When**

Applying Stephens and Krebs (1986), the first question then becomes, which of the forager's choices are to be analysed? This generally involves an examination of what combination of foods to seek (diet breadth), where to look for them (patch choice), how long to spend looking for them (time allocation) and where to locate oneself relative to the food sources (settlement pattern).

(a) WHAT TO GATHER

The MacArthur-Pianka Diet-Breadth Model (1966) aimed to help answer the initial question of what prey-types should the efficient forager select¹¹.

Traditional foragers, as summarized by Lupo (2007:147), “attempt to maximize the long-term net rate of energy acquisition by adding resources into their diet in rank order from the highest to the lowest until the return rate per unit of time is maximized.” There is thus a trade off between search and handling costs.

Traditional models have worked well in ethnographic field tests (O'Connell and Hawkes 1981; Hawkes, O'Connell et al. 1985; Hill, Kaplan et al. 1987; Hill and Kaplan 1988), but numerous limitations have become apparent. Hill, Kaplan et al. (1987) provide evidence that contemporary foragers are not always attempting to maximize energy intake. This may be due to nutritional factors, but it could also be due to various social factors or factors specific to the individual forager (Hawkes, O'Connell et al. 1995; Lupo and Schmitt 2002). The Diet Breadth approaches, in their evolution, have generated numerous testable hypotheses and demonstrated some interesting predictions.

Applying this in the context of a modern forager is complicated as the ultimate aim of foraging is no longer simply nutritional or for reproductive

¹¹ This model makes several assumptions as delineated in Pyke (1984):

1. The fitness of a forager increases linearly with the expected rate of caloric intake and the costs of handling and searching for food are equal;
2. Each food type has an average value and average handling time, both of which are known to the forager;
3. The forager recognises the food types and does not make mistakes in doing so;
4. The forager decides whether or not to eat the food the instant he encounters it;
5. Rates of encounter of different food types is constant and independent of each other and past history;
6. Food items are encountered sequentially rather than simultaneously;
7. Food items, if eaten, are totally consumed;
8. Dietary choices are constant;
9. There are no constraints on total food volume or the rate of food intake.

success (Hawkes, O'Connell et al. 1985), but rather may be a complex basket of factors unique to the particular forager. Nevertheless, a concrete aim must be identified before any potential choices are analysed. Utility is essentially the satisfaction or need-fulfilment derived from an activity¹² and thus the concept can be used as a descriptive tool to explore individual choices. This will allow the use of optimization methods as a means of understanding a forager's behaviour. Therefore, the new model describes the trade-offs faced by the forager, and the solution that will maximize his or her overall satisfaction or utility. The Adapted Model would thus substitute Utility for Energy (as per Charnov and Orians 1973 and Stephens and Krebs 1986):

U = total utility acquired whilst foraging

T = total time spent foraging; t_s = unit of search time

u_i = utility available in a unit of resource i

h_i = handling time per unit of resource i

r_i = units of resource encountered in a unit of search time, t_s .

By definition, $T = t_s + \sum u_i r_i t_s$. Thus, according to the model, a forager should maximize the mean foraging return rate:

$$U/T = \frac{\sum u_i r_i t_s}{t_s + \sum u_i r_i t_s} = \frac{\sum u_i r_i}{1 + \sum u_i r_i}$$

So a food (f) should only be picked if $U/T < u_f/h_f$. and $U/T > r_f u_f / r_f h_f$ or $U/T > u_f/h_f$. Thus, the optimal utility rule is that the net rate of utility gain should be greater than the utility available in a unit of food / the handling time per unit of food. The forager should ignore any food item that reduces the mean

¹² For more on the origins of the concept of utility, see the works of E. Slutsky, V.F.D. Pareto, J.R. Hicks, R.G.D. Allen.

foraging efficiency. This implies that foragers rank food according to utility (u/h) and will take food on this basis.

For example, imagine that a modern forager has a choice between stopping to pick bilberries atop a treeless heath or to descend into a wooded valley to gather hazel nuts. We can use the concept of utility to analyse the trade-off involved with making such a choice. The forager is assumed to be 'indifferent' to the combinations of the foods, but they have a fixed time available in which to forage. This can be demonstrated graphically using indifference curves borrowed from consumer choice theory:

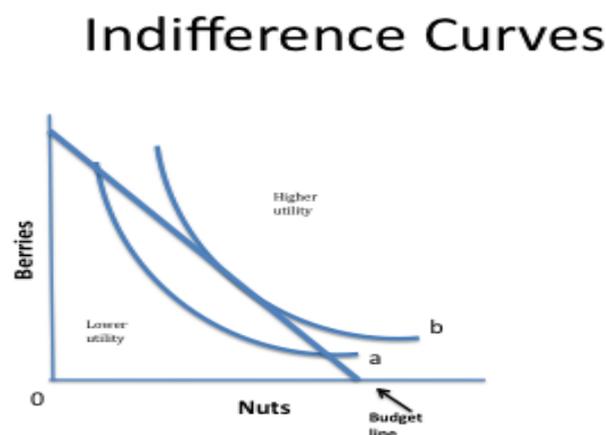


Figure 3.1: Indifference Curves

The forager is indifferent between the quantities of berries or nuts that she gathers, so the various combinations fall on the same line. The further from the origin (0) the curve is, the higher the value or utility. The curves bend as the forager wants a combination of nuts and berries, not just one or the other. The exact amounts, however, are subjective values to the forager.

To clarify this assessment for the individual, we can add a 'budget line' that indicates the available time and energy that can be 'spent' on the search

and acquisition of nuts or berries. We need to know, however, how much acquisition of each food will 'cost' us from our 'budget'. Thus, where the indifference curve is tangent to the budget line, we know that we have reached the maximum utility. And by looking at the slope of the indifference curve, we can tell how much each foodstuff 'costs' and thus how much of each item is preferred given the 'budget' that we have.

However, in order to apply these assumptions to modern foragers, we need to acknowledge individuals whose trade-off involves not just energy and time, but also monetary reward and something so far undefined. We could follow a continuum from foraging for food, foraging as a means to an end and foraging for some individual personal fulfilment. Thus, the spectrum of modern foragers may include:

- *Commercial* foragers who are attempting to maximise the take of particular food items for a given amount of time and effort spent foraging;
- *Purposeful* foragers who are after a certain amount of a particular item such as a berry to make a pie in the evening or to provision a fridge for the coming week;
- *Opportunistic* foragers who may be out walking the dog and chance upon a stand of ripe blackberries or field mushrooms.

Optimal foraging theory can be adapted for the commercial forager, yet the analysis is somewhat tenuous for the other two categories. Thus, a "*purposeful forager*" sets out with the express intention of obtaining a particular food item whereas for an "*opportunistic forager*", finding any

particular food item is incidental¹³. Either category may be “meliorators” or “satisficers,” in that their maximum comes at some ill-defined point wherein they feel satisfied that they have enough for a pie, to quench their thirst or to earn some small monetary reward.

Commercial and certain purposeful foragers may be analogous to the subsistence foragers in that, in general, they are optimizers. Thus, one can propose that:

Purposeful forager’s return = amount of produce gathered per given residence time up to an individual maximum

The price that the commercial forager can obtain is analogous to search costs for the hunter-gatherer. This value could be useful in assessing the current state of the market for foraged goods in the U.K. and the issue of whether any inherent imperfections exist. These foragers may, in terms of the model, bear a close resemblance to a subsistence forager in their basic currency assumptions. A modern forager may attempt to maximize their take of, for example, blackberries, during a given time subject to constraints of the size of her basket, capacity to carry home or levels of market demand.

However, for the purposeful forager, the process of foraging has very different ‘costs’ depending upon the individual. For example, handling costs (h) may not be fully recordable as a cost if the process as a whole is what is being optimized or satisfied. Even more problematic is the situation with opportunistic foragers, whose individual motivations clearly differ. Therefore:

Opportunistic forager’s return = X per residence time, where X is equal to an individual specific combination of activities or benefits associated with the entire foraging process.

¹³ The “opportunistic forager” is not analogous to Binford’s ‘encounter foragers’ (1980) in that even though both move around and store little; the encounter foragers are clearly foraging with the goal of obtaining food.

By adapting the model in this way, individual choices maximize utility subject to certain defined constraints. A “purposeful forager” may be attempting to optimise his or her gathering whilst an “opportunistic forager” may have nothing specific to gather at all and may not be disappointed if she fails to find any mushrooms, provided she has a good walk. Thus, the X for the opportunistic forager might involve many components: physical fitness, spiritual purpose, “the fresh air,” leisure, etc. In this situation, the trade-off may be between the aerobic exercise derived from keeping a certain pace whilst walking and the foraged food, which requires that the walker pause for long enough to gather the item.

Even if the move from an optimal diet approach to one of optimizing utility can be theoretically justified, a point-by-point re-examination of some of the traditional assumptions of the MacArthur and Pianka (1966) Optimal Diet Model (as underlined below) reveals just how far removed the modern forager is now from those for whom the model was created. A detailed analysis is provided in Appendix 1, but, in summary, the optimal diet approach of the conventional model is of less relevance for the modern forager. Modern foragers are rarely looking to acquire calories, and their food choices may have little direct bearing on the utility derived from the activity. Handling and processing costs are very variable, depending upon the individual and whether they are purposefully or opportunistically foraging and this may therefore affect utility assessments. Finally, the modern forager has a much-reduced range of produce (See discussion in Chapter Five) and is very often frightened of making selection mistakes. Each of these points illustrates the

fundamental diversion from the biological imperatives that once drove foraging.

(b) WHERE TO GATHER or “Patch Choice”

The next decision assumption involves where the modern forager should gather. There are numerous issues and sub-issues involved in these decisions such as: Where to base foraging activities? How to choose a good “patch” within which to forage? How to move within and between these “patches”? What are the influences of distances and accessibility?

Where to Base Foraging Activities

In Optimal Central Place Foraging (CPF), an animal has a lair, nest or storehouse to which it returns periodically whilst foraging. CPF models address how the costs of transporting a resource influences the choice of resource, the amount of the resource taken, the distances travelled between foraged patches, the location of a central place and the degree to which the resources are processed (Lupo 2007). For the modern forager, the parallels are obvious. Most modern foragers do not live adjacent to where they forage and many purposeful foragers gather and store their produce for later use. Today, there may be two central places involved in the activities of the modern forager: perhaps a car or “base” where rucksacks, water or storage containers are placed as well as the home from which the forager has travelled.

Central Place Theory would indicate that foraging should take place in the closest patch, as this is optimal (Pyke 1984). This may hold for the purposeful foragers, depending upon their individual constraints, but not for the opportunistic ones who may have no idea where they will encounter a

desirable plant, and may make an instantaneous decision as to whether to pick it. Thus, at least for the opportunistic forager, the role of place in decision-making may only become clear *ex post facto*.

Nevertheless, every forager might need to ponder: How many items should they collect before returning to their base? How many trips should they make? How much processing should be done in the field and how much back at the central location? Metcalf and Barlow (1992) assess how human foragers trade off time spent processing a resource in the field versus transporting an unprocessed amount of resource. Their model includes: the time it takes to process the gathered resource, the increases in utility from the load gathered and the decreases in transport costs resulting from the field processing. They propose that there is an inverse relationship between increasing load utility and the minimum distance at which it becomes efficient to process the resource. Metcalf and Barlow (1992) as well as Bird and Bird (1997) have demonstrated the usefulness of this model when assessing the processing and transport decisions.

The modern purposeful forager will generally enter the field equipped with picking, processing and storage capability. They will be constrained by their own needs (enough for a pie?) and subsequent storage issues (freeze?). Yet for the modern opportunistic forager, as elsewhere, their preparation and constraints will be specific to the individual. As will be explored further below, Central Place Foraging models may assist policy makers in crafting better conservation policies. For instance, purposeful foragers gathering large quantities may put a strain on a natural resource, and this can be evaluated using CPF. Consequently, the distance from a foraging “patch” to a car park

can influence transportation and processing costs and might have a direct bearing upon how intensively a resource can be harvested.

Choosing a Foraging “Patch”

Foraging animals do not face homogenous environments, but rather “patchy” ones and thus the forager must make decisions as to which patches to forage in and how long to remain. A “patch” is generally defined spatially (e.g. Amano, Ushiyama et al. 2006), and usually consists of a “clumping together” of resource types. The area of the patch may be obvious, in that it is circumscribed by fences, waterways or other barriers; or, in the case of plants, by dense and localised growth that decreases at the margin. Patches may, however, be circumscribed by just about anything: a specific food item, a particular strategy or a defined habitat (Lupo 2007). In most cases, a patch cannot be precisely defined. Under the traditional model, during any given foraging outing, an animal may forage in numerous patches of varying nature, size and location.

MacArthur and Pianka (1966) created the Patch Choice Model, which explores the potential trade off between declines in yield per unit time spent foraging in a particular patch and the travel time between patches. The assumptions in the simplest patch-choice models are summarized in Pyke (1984):

1. The locations and qualities of all patches are known to the foraging animal
2. These locations and qualities are constant
3. There is no resource depletion during the time the animal spends in the patch
4. Fitness is an increasing linear function of the animal’s net rate of food gain.

The optimal strategy for the animal under these assumptions is “to spend all of its time in the most conveniently located patch with the greatest

net rate of food gain”(Pyke 1984: 536). And the forager should continue to add patches until total foraging time per unit harvest is minimized. The model works for harvesting items that are easily located in specific habitats and so is applicable to plants such as fungi and nuts. But it does not work well where migratory animals are present for instance nor where foraging within a patch causes a continual decline in the rate of return for that patch. This situation of diminishing marginal returns is addressed in Charnov’s Marginal Value Theorem which, when combined with a Patch Choice Model, predicts when a patch should be abandoned as the resources within it are depleted (Charnov 1976, below c).

The above assumptions are, like most assumptions, unrealistic at times. In the first two, the foraging animal knows the locations and qualities of all patches and these are held constant. But, in applying the model, the issue of imperfect knowledge about the location and quality of each patch cannot be overlooked, particularly when adopting the model to the modern forager. Where a *purposeful forager* has imperfect information about the quality of a particular patch, then allocating time optimally becomes difficult. It requires, at minimum, knowledge of remaining foraging time, an assessment of cumulative experience in preceding patches as well as *a priori* knowledge of the patches not yet visited (Krebs, Kacelnik et al. 1978). Where there is a lot of time left, then sampling other patches makes sense. It is difficult to assess, except *ex post facto*, whether any given sampling strategy was optimal. However, where the foraging is purposeful and for plant-life or other fixed items, sampling should be easier in that a fairly quick assessment can be made of the quality of the foraged produce. This does not obviate the “grass

is always greener” compulsion, but, especially where there are time constraints, patch choice and optimal time allocation should be more straightforward.

This nevertheless does not address the crucial issue of whether the individual has knowledge about access to a particular patch for foraging. For territorial animals, delineating and defending patches is a survival skill and one that is often linked to reproductive success. In contrast, for a modern forager seeking plant life, a patch is likely to simply be a defined area in which a particular plant or fungi grows. Importantly, any foraging “patch” will be on the property of either an individual or a state entity and so will be bound by the rights and obligations incurred under the prevailing property regime. This adds a very significant complication to the question of patch choice. The modern forager not only need concern themselves with the quality of a particular patch but also with their right to enter and remain in that patch as well as to take plant life whilst there (Refer to Chapter Four for a full discussion).

Access to “Patches” for Foraging – For the Modern Forager

To begin with, there is a definitional problem of the word “access”. Schlager and Ostrom (1992:249-262) helpfully distinguish between a property right of access, which is the right to enter an area but not to take anything, and the right of withdrawal, which includes the right to obtain resource units. This distinction is a crucial one in recently drafted legislation and one that needs careful consideration when assessing an individual’s right of access to patches for the purposes of taking plants or their produce.

As Ribot and Peluso (2003:153) explain, there is a distinct difference between the “*ability* to derive benefits from things” and the “*right* to benefit

from things”. They prefer reference to a “bundle of powers” rather than a “bundle of rights” as are traditionally used in connection with property. This distinction moves the discussions toward the social relationships that affect resource use. They introduce the tool of “access analysis” for understanding which people or institutions control access and why.

Thus, in terms of foraging, access in the past was generally about an ability to derive a benefit with a right more often than not arising from custom¹⁴ rather than from any formal rule or law. Today, access to land, access for purposes of foraging, and the actual taking of plants are distinctive activities in law. The Countryside and Rights of Way Act 2000 makes a much clearer statement of the rights of the public to access land than has previously existed. However, even though access is a prerequisite for foraging, an individual may have access and still not have the right to pick plants on that land.

In summary, “patches” today are circumscribed - not only by fences, but also by laws. The purposeful forager may know the location of foraging patches, but one out foraging opportunistically may not. Moreover, neither forager may be aware of the crucial distinction between the right to be on land and the right to forage whilst there. Access issues, as detailed in Chapter Four, amount to a potential constraint faced by foragers and, as such, must be included in the model. (See additional discussion concerning constraints below). Again, this adds another complicating dimension to any application of

¹⁴ Common rights that could be exercised by the tenants of a manorial estate usually extended to rights of pasture (to graze livestock on the commons), rights of turbary (to cut peat or turf) and rights of estover (to take necessities from the common). Note the discussion in Chapter Four.

Optimal Foraging Theory and illustrates the divergence from the spatial imperatives once associated with gathering.

(c) WHEN TO PICK, AND FOR HOW LONG TO PICK

Charnov's Marginal Value Theorem (MVT) can be used to predict when a forager should leave a patch due to the gradual depletion of the resources within it (Charnov 1976). MVT begins with a given number of patches and attempts to assess what time allocation to each patch within the set is optimal in terms of overall rate of energy capture. It deals with the optimal residence time (RT) strategies of an animal and indicates that a rate-maximizing forager will stay in a patch until the marginal rate of gain at the time of leaving a patch equals the long-term average rate of return.

The theory rests on the following assumptions:

- That fitness increases linearly with the expected net rate of energy intake; that this intake depends on patch type and time allocated to the patch; that the time in the patch is limited and that the forager knows the quality of the patch.
- That the process of foraging depletes the resources of a given patch and results in a decline in the net rate of return from that patch.

This leads to several predictions:

- a. A forager should leave a patch when it is depleted to the point where foraging elsewhere will have higher returns per unit of time, taking travel costs into account.
- b. As the overall productivity of a habitat increases, less time should be spent in any particular patch and vice versa. Interestingly, this implies that where resources are scarce or productivity declining across the whole set of patches, an optimal forager will stay longer in a patch and vice versa. For example, where a foraged food is abundant, there is no incentive for a forager to stay in any one patch for very long, as the average yields may not vary much depending upon location. But where the productivity of a range of patches is declining, the forager will likely increase their patch-stay time. This latter prediction is, of course, a highly significant one for resource managers and is discussed in detail below.

- c. The lower the travel costs between patches, the less time that should be spent in any one patch and vice versa.
- d. A patch will not be added unless its marginal rate of return is equal to or greater than the average rate of return for all of the other foraged patches.

Applicability of Marginal Value Theory to the Modern Forager

The predictions derived from MVT have obvious implications for questions of access and for conservation, but they are somewhat controversial, particularly when applied to humans or livestock. Some ecological anthropologists have observed sophisticated resource management amongst indigenous peoples (O'Connell and Hawkes 1981), but others maintain that where there are no strict rules as to who controls a resource or a patch, then that resource will be over-exploited. This recalls the debate initiated by Garrett Hardin in "The Tragedy of the Commons" (1968)¹⁵.

Smith maintains that Marginal Value Theorem can add much to this discussion (Smith, in Smith, Bettinger et al 1983: 632). In comments reminiscent of Harding's conclusions, he states:

The assumption of foraging theory that individuals will seek to maximise net returns per unit foraging time suggests that planned conservation will be limited to cases in which individual foragers or small economically integrated groups have more or less exclusive control over resources within a given foraging area. Unless such affective territorial control is present – and it rarely is among non-sedentary hunter-gatherers [...]– restraint in resource harvest by one individual or group will often be to the profit of another individual or group, and effective conservation will be impossible.

He qualifies this by declaring that this does not necessarily prove that there is a tendency towards a tragedy on the common. Regardless, in the MacArthur-Pianka patch model, where patches are characterised by raw return rates, short-term depletion of resources is likely to result. Thus, according to the

¹⁵ A full discussion of Hardin's thesis and the subsequent criticisms is provided in Chapter Five.

second set of assumptions of MVT, foraging depletes the resources of a given patch and results in a net decline in the foraged produce. The “tragedy of the commons” is that, since no one controls the volume of a resource taken, the incentive is for each individual to take as much as they possibly can, leading to the over-exploitation of a patch. Since there is now limited access to much of the foraging land in Britain, MVT would predict that over-exploitation will increase.

However, for the modern forager, many commonly foraged plants are only exhaustible in the short-term, since they will rejuvenate over time. Moreover, there are diminishing returns from resource depletion, as explained in the Marginal Value Theorem, and so long as there are still other patches to exploit, total elimination of the resource is actually unlikely to happen, as the forager will continue moving to other patches where the return rate is higher. Therefore, to some extent a forager may act in an unconscious, self-interested manner, and thereby conserve the resources of a patch. Moreover, according to Smith, “if the exclusion of competing foragers can be instituted to some degree, optimal foraging practices may quite closely mimic rational conservation measures” (Smith, in Smith, Bettinger et al 1983: 633)¹⁶.

As explored above, a modern non-commercial forager¹⁷ is very often self-limited in the quantity that they can pick, either by time constraints or handling costs. Thus, over-exploitation is most likely to be an issue only where there are a large number of individuals gathering the same wild food. Therefore,

¹⁶ Evidence in support of that human foraging behaviour is consistent with these models can be found in: O'Connell, J. F. and K. Hawkes (1981). *Alyawara Plant Use and Optimal Foraging Theory. Prehistoric Archaeology and Ecology Series*. K. W. Butzer. Chicago, University of Chicago Press: 13-35; Winterhalder, B. and E. A. Smith (1981). *Hunter-Gatherer Foraging Strategies*. Chicago, University of Chicago Press.

¹⁷ As delineated in Chapter Four, commercial foraging is generally illegal.

though much of what is foraged today are common pool resources, a system of self-organisation in the governance of a resource such as bilberries has emerged where the berries are popular with both foragers and farmers (See, e.g. Ostrom 1990, 1994, 2000a, 2007, Lee and Garikipati 2011, and the discussion in Chapters Four and Six). Interested parties may share the same conservation aims and cooperate to optimise their respective returns.

It is worth exploring this in further detail. Stephens and Krebs (1986) apply Marginal Value Theorem to analyzing the choice of how long to stay in a particular patch. The animal's cumulative net energy intake (yield) is a differentiable function of time. This rate is assumed to be positive initially, but to decline thereafter as the patch is depleted. It is further assumed that the forager can identify the patches. Thus, the feasible choice of residence time (t) for each patch (p) is thus $0 \leq t_p \leq \infty$. This choice may be important where, for example, wardens or other land managers are concerned with promoting sustainable gathering. The gathering rates coupled with residence time clearly impact upon the quantity of a food available for gathering at any given point in time. It is not clear whether a non-commercial or a commercial forager is more likely to leave a patch first or for what reason, but field tests indicate that different foragers have differing foraging styles and preferred residence times (Lee, Field Tests, 2007-2011). Being able to draw general conclusions on this point will be important for landowners and conservationists alike and will inevitably feed back into the issue of access.

Perhaps this issue can be clarified using the concept of Optimal Giving Up Time (GUT) (McNair 1982)¹⁸. In the MVT described above, the GUT was considered given, even where the patches differ in quality. But McNair points out that common sense dictates that a forager should be more persistent in higher quality patches. So, McNair defines GUT as a being a threshold time (t) that a forager will remain in a patch so long as it continues to obtain food without having to wait or search for longer than t . Once t is exceeded, the forager leaves the patch. McNair finds that, as long as diminishing returns applies, these strategies predict that foragers will spend more time on average in good patches than poor ones whilst simultaneously obtaining higher yields.

To simplify, where a forager randomly encounters food items in identical patches, three departure rules pertain involving:

1. Time per patch
2. Food per patch
3. Giving-up Time

In testing each of these rules, Iwasa, Higashi et al. (1981) found, unsurprisingly, that where maximum food gain is the objective, the fixed amount of food strategy is best followed by the fixed time and the giving-up time strategies respectively. This indicated that good conservation would tend to limit the amount of take rather than the time spent and has obvious uses for legislative decision making. Thus, should the intensity of foraging become an issue at any one site, governance of the site could be geared toward limiting volume or, less ideally, to instituting a system of time-controlled access.

¹⁸ The term was introduced and defined by Croze (1970) as “the time passed in an experimental area from finding the last [food item] until flying or walking well away.”

Field Tests

A modern forager, like his or her predecessors, also faces the question of when to pick and for how long to do so as well as what might constrain their efforts. As Rackham (2003: xvii) admonishes:

Those who do no fieldwork, [...], will never appreciate that archives do not tell the whole story.

Besides reading and digesting the theory, one has to go out and forage to understand. Thus, over a four year period, various “picking experiments” were undertaken with volunteers in an effort to see whether the theory that plays out so interestingly in mathematics has any resonance in reality. These tests were conducted on wild heath land with the aim of understanding the gathering process as well as producing data to test a modern approach to the theory.

Table 3.2: General Field Test for Purposeful Foraging

Decision Category	Strategic Goal	Domain of Choice	Cost-Benefit Criteria	Constraints
Pick bilberries for the freezer for winter consumption	Pick as many berries as possible over 10 minute increments	Harvest by hand or by rake	Return per unit handling time	Individual ability; abundance
Patch Choice	Find most productive patches of bilberry heath land	Which set of patches to visit	Average rate of return over all patches	Travel constraints between patches
Time Allocation	Optimal Time Allocation	Time spent	Average rate of return	Time constraints

Table 3.3: Field Test for Purposeful Foraging on Moel Famau

Decision Category	Strategic Goal	Domain of Choice		Constraints
Pick bilberries for the freezer for winter consumption	Pick as many berries as possible over 10 minute increments	By Hand	8.87 g/min	Individual ability; abundance; weather conditions
		By Rake	37.85 g/min	
Patch Choice	Moel Famau	Reclaimed heath land	Assessed maximum	Time; fences & other blocked access; presence of sheep
Time Allocation	N/A	2 hours in 10 minute increments with breaks	N/A	Walking time to patches; Journey home time

Table 3.4: Field Test for Purposeful Foraging on Bickerton

Decision Category	Strategic Goal	Domain of Choice	Result	Constraints
Pick bilberries for the freezer for winter consumption	Pick as many berries as possible over 10 minute increments	By Hand	13.02 g/min	Individual ability; abundance; weather conditions
		By Rake	60.6 g/min	
Patch Choice	Bickerton Hill	Around Maiden Castle	Assumed maximum	Time; fences & other blocked access; presence of cattle
Time Allocation	N/A	2 hours in 10 minute increments with breaks	N/A	Walking time to patches; Breaks, handling time

As introduced above, questions of gathering times, volume and patch choice are relevant issues in conservation and modern agricultural practice. An example of why is evident in the policy of regenerating the bilberry heath land has been underway on the test sites at Bickerton and Moel Famau (see Section 6.4). The results of these conservation efforts are evident from the experiment: controlling for other factors, Bickerton Hill currently produces more berries per amount of time spent gathering than Moel Famau, whether

by hand or by rake. In addition to Optimal Foraging Theory, Marginal Value Theory and assessments of Giving-up Time might now be employed to assess sustainable picking volumes and to evaluate cooperative management arrangements governing common pool resources. In conclusion, the strategies that might be employed by the modern forager out gathering plants may include optimizing time per patch, food per patch or giving-up time.

3.3.2 CURRENCY ASSUMPTIONS

Having examined the decision assumptions that may govern foraging behaviours, the next question concerns how these various choices are to be analysed. Currency refers to the method used to evaluate the costs and benefits of different foraging decisions. The standard currency assumption used in OFT is one of long-term average rate maximization – generally the net rate of energy intake (Pyke et al. 1977: 138). Thus, for subsistence foragers, the currency is:

Hunter-gatherer's return = average rate of energy intake in the patch.

The addition of nutrients to this calculation expanded the relevance of the theory, but added to the debate surrounding the relative importance of each, necessitating the adaptation of linear programming models to account for the diversity of requirements now assessed. Several researchers have hypothesized that human subsistence foragers are attempting to minimize risk rather than maximize the efficiency with which a food is acquired (Gould 1980; Cashdan 1982). This has, of course, made the resulting models quite complex. These complex currency models have, however, proved useful in areas where the foragers rely predominantly on a wide range of plant foods.

[Table 3.5: Different Currencies Used in Optimality Models \(Smith 1983; Lupo 2007\).](#)

Currency	Description
Efficiency (F)	Ratio of energy acquired (Ea) to energy expended (Ee) such that $F = (Ea/Ee)$.
Gross Acquisition Rate (Rg)	Ratio of energy captured (Es) per unit of handling time (Ta) such that $Rg=(Ea/Ta)$.
Net Acquisition Rate (Rn)	Ratio of net energy, energy acquired less energy expended (Ea-Ee) per unit of handling time (Ta), such that $Rn = (Ea-Ee)/Ta$

A Modern Forager's Currency

The choice of a currency for use in a model of a modern forager is difficult.

Defining goals is complicated even where we apply the standard choice principle of maximization of the net rate of energy gained whilst foraging.

Moreover, several studies have found that, even in animals, different currencies yield differing predictions about behaviour (See, e.g.,

Weimerskirch, Ancel et al. 2003). Whilst a hunter-gatherer was most definitely concerned – at least to some extent -with the net rate of energy gained, a modern forager may have numerous overlapping objectives in foraging, making selection of an appropriate currency difficult. As Kacelnik and Krebs (1997) argue, the choice of currency is complicated and depends upon the context and the particular forager.

A purposeful forager may wish to maximize his or her harvest take for a given time period. Thus, any of the currencies listed in the Table 3.5 may be useful, though intuitively gross acquisition rate (Rg) makes the most sense. We can substitute the ratio of the quantity gathered (G) for energy captured (Es) per unit handling (Ta) such that $Rg = (Ga/Ta)$. This was evident in the field test notes (Tables 3.2-3.4). Someone harvesting bilberries may sit and pick most of the viable berries in a stationary 'patch', or move between 'patches'. Since energy expenditure is a minor consideration for the modern

forager, the gross acquisition rate was the most relevant currency. Interestingly, however, the individual's gross acquisition rate did not appear uniformly affected by the strategy adopted. Foraging returns are not necessarily central, even to subsistence foragers, as opportunity costs factor highly in the evaluation as well (Hawkes 1987).

Nevertheless, R_g provides information that is easily recognizable to economists and biologists and allows us to use optimization to analyse various trade-offs¹⁹. Thus, for a *purposeful forager*, the utility derived from foraging would be found in the quantity gathered subject to the constraints of price (or availability) and search time and costs. On the other hand, an *opportunistic forager* may be as much interested in getting exercise and enjoying the scenery as in the take. Since this combination of interests is very specific to the individual, clearly defining a currency is especially difficult. Again, gross acquisition rate (R_g) seems the most useful, where "utils" are substituted for energy, giving utils obtained (U) per unit handling (T_a) such that $R_g = (U_a/T_a)$. However it is obvious that it would be extremely difficult to apply this in any other than a loose theoretical sense.

To relate this model to a forager today, return to the example where a modern forager has a choice between stopping to pick bilberries atop a treeless heath or descending into a wooded valley to gather hazel nuts. We can use the concept of utility to analyse these choices.

¹⁹ Given the difficulties with using optimization for many aspects of foraging behaviour, several researchers have recommended substituting the concept of 'satisficing' for optimization (Simon 1955; Carmel and Ben-Haim 2005). Steven Mithen (1998) advocates a similar concept which he calls "meliorating."

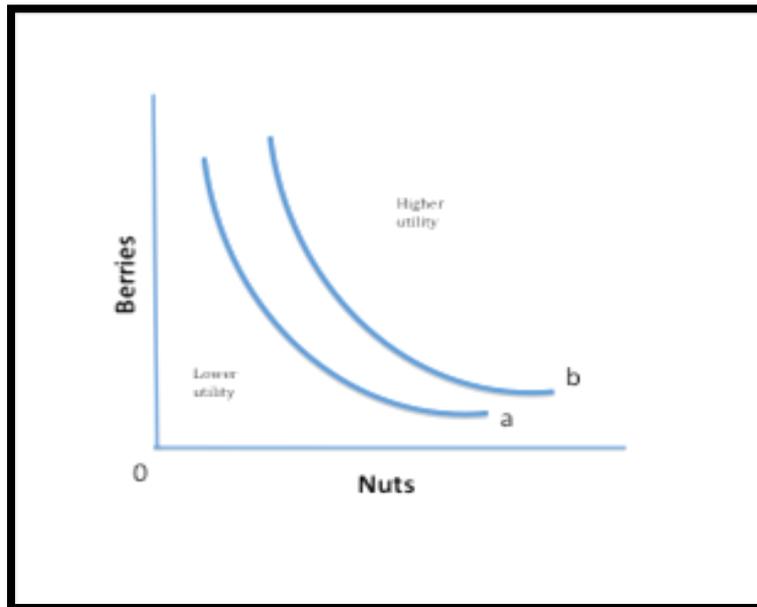


Figure 3.2

Any combination of nuts or berries yields an equivalent value and the total value increases further from the origin.

Recall that:

Purposeful forager's return = amount of produce gathered per given residence time up to an individual maximum

Whereas:

Opportunistic forager's return = utility per residence time

As noted, it is open to question whether these foragers qualify as optimizers: they may be satisficers (Mithen 1989; Simon 1955; Carmel and Ben-Haim 2005). They may even be purely impulsive and thus have no rational reason as to why they decide to leave a patch. A purposeful forager is theoretically attempting to optimize their take within a given period of harvesting time.

However, for many pickers today – even those whose intention is purposeful – this optimization rule may not be a firm one. For many harvesters, the foraging expedition is a “day out” and the actual take an ancillary benefit.

3.3.3 *CONSTRAINT ASSUMPTIONS*

The final component of Stephen's and Krebs's Model concerns constraints: what factors limit the feasible choices and what limits the pay-off that may be obtained in making these choices. In the classical models, the innate ability of the individual matters; therefore, age, fitness-level and knowledge are all pertinent factors. However, as with much else relating to the models, we can note distinct shift in the constraints faced by the modern forager.

In general, the constraint assumptions begin that the forager is either searching for a patch or foraging within a patch, but not both at the same time (See Table 3.6). Also, that foraging within patches is sequential and is a Poisson process in that each one is independent of the other. The net expected gain within a patch is related to residence time [gp(tp)] with the following characteristics: gain is zero when zero time is spent in a patch; the function is initially increasing but eventually is negatively accelerating as diminishing returns set in. Complete information is, at least initially, assumed.

Table 3.6: Summary of Constraint Assumptions for the Modern Forager

POTENTIAL CONSTRAINT	Detail
Physical Characteristics of the Individual	Motability Fitness Level
Diet and Nutritional Requirements	Not applicable in general
Abundance of Food	Habitat richness
Time Constraints	Travel time between patches Individual time constraints
Location Constraints	Spatio-temporal Dispersion Predictability of Resources Access and Permission Competition Travel Time

As noted in the discussion of Central Place Foraging Theory, by identifying the potential constraints faced by an optimizing forager, we can

potentially improve conservation policy. One of the more straightforward constraints to utilize is location: car parks and access points affect many of the decisions of a forager and impact upon the currency used to evaluate the relative costs of benefits of these decisions.

However, one concrete omission from the standard model is the 'socio-cultural constraining variables' (Bishop's Comment on Smith 1983:641; Keene 1983; Lupo 2007). As we shall see in the remaining parts of this thesis, these variables are very important - sometimes determinant – of the available choices and payoffs facing the modern forager. For instance, take the search for a patch: a forager must not only have the knowledge of where to find a particular wild food, but must also have the ability to access that food. As explored above, this is not straightforward. The current legal environment acts as a clear constraint upon certain foraging practices and locations – and the evolution of this constraint is the subject of Chapter Four.

3.4 APPLICATION: AN MODERN FORAGING MODEL

The research question posed at the start of Chapter Three was: How does modern foraging behaviour differ from that of the past? The answer in short is that the altered objectives surrounding modern foraging symbolize the now fundamental mismatch between our evolved biological processes and the ecology of the modern world. We do not need foraged food to optimize our diet or nutrition, or to improve our chances at successful reproduction. Nor do most of us have any spatial sense of the natural food resources around us or where and when to locate them.

3.4.1 The Fundamental Shift in Human Foraging Behaviour

Hirshleifer queried whether “the cultural evolution of the human species has carried it into a realm where biological and spatial laws are determinative or only a minor fraction of behavioural phenomena” (1977: 2). Chapter Three provides strong theoretical support that biological laws, at least with respect to diet and reproduction, have a negligible effect on modern foraging behaviour. Foraging is now a ‘recreational luxury’, not a survival function (Lee and Wickham-Jones 2012). Non-commercial modern foragers do not fit into the theoretical profile of the models’ usual subjects. They are not attempting to maximize their nutrition nor their reproductive success; culture rather than genes is at the forefront of decision-making. The harvest for the modern forager is a symbol of the complex inter-action between people, plants and places.

Progressive cultural adaptation to the exigencies of modern life have altered the relationship between people, plants and the land and this finding has support in studies of a previous fundamental human transition: that from foraging to farming. Bowles (2011) maintains that it may be as much the

social and demographic aspects of farming, rather than simply productivity, that accounts for its emergence and spread. Farming meant more work for the individual, a less varied diet and more (and more pernicious and virulent) diseases than those encountered by foragers (See, e.g. the research of Weston Price 1939). And yet it allowed for population growth and greater social complexity (Barker and Janowski 2011). Thus, the reasons for this fundamental shift from hunter gathering to farming are not a simple matter of opportunity or food shortages (Barton 2009). The changing social landscape is an equally important cause – and consequence. This complex interaction is at play throughout human evolutionary history.

3.4.2 An Optimal Foraging Model

Optimal Foraging Theory has a use in framing the context in which modern foraging occurs in that it highlights the personal importance of the activity to individuals and the legal, economic and social structures that surround it. Making generalizations from a loosely applicable theory with limited empirical support is not generally a good starting point. However, Chapter Three illustrates that foraging models - even where unrealistic - can nevertheless provide insights into the activities and motivations of the modern forager as well as highlight the institutional structures affecting them. Specifically, the simplified models can help us to explore what the modern forager is searching for and why (decision assumptions); how these choices are evaluated and compared (currency assumptions); and what limits the rewards that can be obtained (constraint assumptions).

The Modern Optimal Foraging Model that emerges from this research distinguishes between foragers who are out to gather a specific food or foods (“the purposeful forager”) and those who encounter wild foods whilst engaged

in other activities, such as walking (“the opportunistic forager”). We can take the broad approach of substituting ‘utils’ for the goal of a modern forager, thereby acknowledging the fundamental shift in foraging objectives away from evolutionary-biological objectives towards socio-cultural ones. These relative differences are noted in the following tables (3.7 and 3.8), which present a rudimentary Modern Optimal Foraging Model.

Table 3.7: A Modern Optimal Foraging Model for the Purposeful Forager

Decision Category	Strategic Goal	Domain of Choice	Cost-Benefit Criteria	Constraints
What to pick	Absolute Return	How much and how to harvest	Return per unit handling time	Individual ability and knowledge; abundance
Patch Choice	Where to Harvest	Which set of patches to visit	Average rate of return over all patches	Travel constraints
Time Allocation	Optimal Time Allocation	Time spent	Average rate of return	Time constraints
Central Place Location	Optimal Location for efficiency	Location of each site	Average travel or search costs per unit of harvest	Knowledge, travel, location and time constraints

Table 3.8: A Modern Optimal Foraging Model for the Opportunistic Forager

Decision Category	Strategic Goal	Domain of Choice	Cost-Benefit Criteria	Constraints
What to pick	Maximize Utility	How much to harvest	Return per unit handling time	Individual ability and knowledge
Patch Choice	Where to Harvest	Why and how to select a patch in which to pause	Relative utility compared with alternative activities	Efficiency with which alternatives are ranked or decisions made
Time Allocation	Optimal Time Allocated to Alternatives	Time spent relative to alternatives	Marginal Utility	Knowledge of utility of alternatives; location constraints
Central Place Location	Only relevant incidentally			

Unlike with most applications of OFT to subsistence foragers, the decision assumptions do not necessarily involve a choice between alternatives. Modern purposeful foragers may aim to gather one type of plant food for eating or for storing. There is little issue of diet breadth or optimal nutritional composition. Rather, the purposeful forager sets out for a variety of different reasons. We can nevertheless assume that, like the traditional forager, the purposeful forager is an optimizer. He or she is attempting to maximize the amount of produce gathered per given unit residence time (up to some individual maximum). However, opportunistic foragers differ from purposeful foragers. They have a certain minimum level of fitness and are not foraging expressly to augment their diet from the food they gather, thus, what they are seeking to optimize is harder to establish. They may be seeking to maximize their utility in the plant they gather or in some other individually defined utility. Their knowledge and experience is varied and variable and the recognized pool of wild foods is greatly diminished.

Optimal foraging theory also helps us to approach the question of “where” a forager gathers their herbs, nuts and berries from a unique perspective. “Patch choice” is very problematic for the modern forager as opposed to a free-roaming hunter-gatherer of the past, both in terms of knowledge and experience as to the location of food sources as well as the access to land to gather. Patches today are circumscribed by fences and by laws, and these constraints merit further research.

Finally, for commercial foragers, the search costs for the hunter-gatherer have resonance in the price that can be obtained in the market for a mushroom or punnet of berries. This could prove useful in any evaluation of

the growing market for supplying up-market restaurants (such as the Fat Duck and L'Enclume) with foods from the field and hedge.

3.4.3 Potential Applications of the Modern Optimal Foraging Model

Optimal Foraging Theory can help in the creation, evaluation and adjustment of policies for the conservation of natural resources. The application of the model may be helpful in evaluating issues of access and foraging rights as well as in formulating conservation policies. Modern foragers must be concerned about their rights to be on land and to gather plants legally whilst there. With the opening up of vast tracks of countryside under the Countryside Rights of Way Act (CROWA) and the increasing popularity of foraging in the hedgerows, concerns are increasing about the potential over-exploitation of wild foods and the connected threats to protected plant species.

Marginal Value Theorem (Charnov 1976) predicts that over-exploitation of wild foods should increase as the access to land is open up. However, as will be explored in Chapter Four, systems of self-organisation in the governance of wild foods resources may emerge (Ostrom 1990). Nevertheless, where the intensity of foraging is becoming an issue, land managers and conservationists may employ Optimal Foraging Theory to create, evaluate and enforce effective laws and regulations controlling resource usage. For instance, Central Place Foraging theory indicates that limiting access to car parks or ensuring that access points are located far from resource sites may effectively limit the take of foragers by increasing handling and transport costs. The concept of Optimal Giving-up Time (Charnov 1976) may also help establish limitations on the volume of any one plant taken or in

controlling the access time to specific patches. Further research into the applicability of these potential tools is required.

Finally, in addition to extending understanding in the areas highlighted in Chapter Three, there are numerous related areas for novel research. For example, spatial ecology explores biological landscapes, evaluates how organisms move and assesses the resultant interaction with the environment they inhabit. According to Grunbaum (2011: 1514), “Random walks are common among nearly all motile organisms [...]” This is important for understanding the impact of environmental changes in ‘patchy’ environments and may help us to refine the tools introduced above. However, to date, no one has explored modern human foraging from the perspective of a spatial ecologist. A modern forager encountering a resource patch has to make a decision as to how to move within that patch (speed, direction, persistence time, giving up time). These individual decisions are initially influenced by the nature of the patch and yet will, in turn, eventually affect the patch. By studying the motile behaviour modern foragers and observing this biological interaction over time, it may be possible to learn about the potential evolution of patch structures. This could contribute enormously to the formulation of effective natural resource conservation.

CHAPTER FOUR: THE HISTORICAL AND CONTEMPORARY IMPORT OF THE LAWS SURROUNDING FORAGING²⁰

“The differences in the particular rules [governing the common] take into account specific attributes of the related physical systems, cultural views of the world, and economic and political relationships that exist in the setting.”

- Elinor Ostrom, *Governing the Commons- The Evolution of Institutions for Collective Action*, 1990, p. 89.

4.1 INTRODUCTION

Optimal Foraging Theory, in explaining the fundamental change in human foraging behaviour, revealed how socio-cultural constraints impact significantly upon the modern foraging process. Chapter Four addresses the specific constraint mentioned in Chapter Three: the evolution of the laws surrounding access to patches and the rights associated with foraging.

The normative right to forage is one that is deeply ingrained in the social and legal history of England. Even where there have been limitations on access, foraging for plants for personal use has persisted during much of English legal history. Historically, probably owing to the relatively low economic importance of uncultivated plants, the issue has almost always been peripheral in statute or to findings in case law. In the earliest written histories, when foraging was still important for sustenance, the law focussed more on broader issues of ownership and livestock foraging rather than human foraging. Later, as society became more agricultural, the actual rights associated with foraging ‘patches’ were rarely evaluated except where the activity was commercial or where other issues were involved.

This normative right sits uncomfortably in the modern regime of legal rights. This is a function both of the complicated history of English property rights as well as the public policy (or often lack thereof) towards peripheral

²⁰ Significant parts of this chapter have been published in the *Journal of Environmental Law* (2011).

communal rights. The systemic evolution of the regime and the persistence of foraging, despite increasing legal restriction, mirror the evolution of property rights as English institutions have adjusted to economic development. During the ebb and flow of the common law, foraged produce has sat mostly ignored at the margins, with questions of access to foraging ‘patches’ being problematic for the judiciary. Nevertheless, a *right of access* is a prerequisite to the exercise of a *right of withdrawal* (Schlager and Ostrom 1992; Ribot and Peluso 2003), and the development of these coincidental rights must be considered together in understanding both the regime that we have today and the one that may prevail in the future. As eloquently noted by Getzler (2004: 5):

The law is interesting and important as an epiphenomenon, a complex reflection of economic interests and social ideology; but legal rules themselves are not leading forces in the allocation of rights, duties and resources.

This thesis sits firmly within such a functionalist tradition in arguing that the law has not directly affected the social, economic and ecological systems surrounding foraging (Coase 1960; Posner 1998). Rather, it reflects changes in those systems and thus can provide us with a vehicle for analysis of the institutional setting in which foraging has operated - and may operate in the future. Chapter Four begins by identifying foraged resources as “inherently public property,” or collective goods that are available to all for enjoyment (Rose 1986)²¹. It moves next to a transactions cost exploration of the “problem of foraging,” which has led inexorably to the communal control of foraging resources. This communal regime evolved at common law and

²¹ This is similar to the concept of “horde property” referred to by RC Ellickson, “Property in Land” (1993) 102 Yale L. J. 1315, 1322-23.

demonstrates how Elinor Ostrom's concept of "long-enduring common pool resource institutions" have been in evidence in the historical regimes surrounding foraging, and that they persist, in spite of what appears to be an increasingly inflexible legal framework.

Recognizing the importance of past practices, the following chapters survey the historical evolution of the law governing the taking of plant life and the social context within which it evolved. Today, systems akin to those detailed by Ostrom and others can be found scattered throughout Britain, as illustrated through a case study involving bilberries and the management of a bilberry heath land. Chapter Four concludes with several insights that place people at the centre of ecosystem services and may help policy makers construct appropriate regimes for conservation and usage in the future.

4.2 "INHERENTLY PUBLIC PROPERTY" AND THE PROBLEM OF FORAGING

The importance of foraged plants to people has declined steeply over the course of modern English history. From being vital as a foodstuff or as a source of income, wild foods have become little more than an atavistic diversion. Nevertheless, interest in foraging – atavistic or not - is reviving. With a fixed stock of land, to which access is often limited, this raises the potential of over-exploitation.

The problem of achieving the optimal allocation of a scarce resource is core to economic theory, and has been much debated in the context of natural resources. For instance, Garrett Hardin in his famous article in *Science* in 1968, "The Tragedy of the Commons," detailed how communal pasture could be effectively destroyed when herders, acting rationally and in their own best interests, put as many cows on the commons as they could. He considered

that overharvesting was an inevitable consequence unless an external authority imposed controls. However, Hardin's thesis was not supported in the historical record and he subsequently qualified his position (Hardin 1994:199).

In "The Problem of Social Cost," Ronald Coase (1960) argued that regardless of the initial allocation of a property right, a "socially optimum" allocation of the associated rights might be created through a process of bargaining. For this allocation to work, however, the initial transactions costs must be low; the rights clearly defined from the outset and there must be free bargaining amongst the key parties. Yet in modern foraging systems, transaction costs are not low. Disparate modern foragers may have no connection whatsoever with each other save their desire to gather a wild food from a particular location. Identifying them for purposes of bargaining may prove difficult if not impossible.

Consequently, where these initial assumptions do not exist, a Pareto-efficient provision may result in alternative property systems. This thesis takes Richard Epstein's view that resources can exist for which exclusive usage rights do not improve utility (Epstein 1994). As explored below and in Chapter Three, utility is a proxy for the satisfaction or overall benefit garnered from something and this refers both to individual utility and a more general view of the utility of the resource to society. Thus, rather than improving utility, exclusive usage rights could instead raise the costs of wild foods with no corresponding benefit to anyone emerging.

However, as proposed by Getzler (1996), the pressure of transaction costs can lead to the creation of communal or customary control of resources, where this is the best way to avoid mismanagement or to minimize policing

costs. Such property may even be owned and managed by society at large, a situation Rose (1986: 720) calls “inherently public property.” It is not controlled by the state or by private owners, and has historical associations in the doctrines of “public trust,” “prescription,” and “custom”. By applying transactions costs analysis, foraged plant-life can be seen to equate to an “inherently public property” (Ellickson 1993: 1382-3).

First, foragers must objectively value access to land for purposes of gathering by more than the landowner would benefit from excluding them. Where the accessed land is neither fragile nor geared toward the protection of wildlife and where the product gathered is not rare²², it is unlikely that foraging would diminish the underlying property. Also, unless the landowners intend to exploit the resource themselves, their own objective value in the harvest is likely to be less than that of the forager. As the classical economic problem of over-exploitation is less clear-cut in the case of foraged produce, foragers may gather food on an annual or seasonal basis, allowing the plant to regenerate and thereby not diminishing long-term use for anyone else. Properly managed and harvested, foraging resources can be non-exhaustible, at least in the medium-to-long term.

Second, conceding foragers’ privileged access for the withdrawal of wild foods will not substantially increase the landowners’ general burden of maintaining boundaries. As illustrated in the following review, access to land where wild foods grow is the product of a long-evolving common law and statutory rights regime. There is now rarely an issue as to whether an

²² The Botanical Society of the British Isles provides guidance as to the classification of plants. Refer to: www.bsbi.org.uk/Code_of_Conduct.pdf and www.bsbi.org.uk/, last accessed 27 March 2011, 2:00 p.m.

individual has lawful access, rather the question is whether they have the right to do or take anything once they are lawfully on such land. This analysis supports the contention that a privilege to forage does generally exist and should continue to do so, unfettered by formal legal restrictions.

Finally, where an “inherently public good” in foraging exists, it is usually too difficult for landlords and foragers to negotiate in any substantive or coherent way. This would appear to thwart a successfully managed commons system. However, research by Elinor Ostrom provides a way through this thicket. Ostrom has, for many years, explored the creation and maintenance of successful commons systems. She won the Nobel Prize in 2009 for empirical work that demonstrated that people, left to their own devices, would design reasonably sophisticated systems of governance to make sure that their common resources are not over-exploited. Many years of research using an array of qualitative and quantitative techniques resulted in the path-breaking book, *Governing the Commons: The Evolution of Institutions for Collective Action* (1990), which gave support to the view that users of common pool resources can both create and enforce efficient rules²³. This part of the thesis uses the same empirical approach and framework in demonstrating how such rules also come into play in “inherently public property” regimes.

²³ See also, E Ostrom et al. “Covenants With and Without a Sword: Self-Governance is Possible” (1992) 86 Am. Pol. Sci. Rev. 404.

4.3 HISTORICAL PERCEPTIONS OF ACCESS AND FORAGING

The past is a different place, yet it has much to tell us about not only the evolution and application of the common law in the realm of foraging, but also about the inter-relationship with public policy on a local and national level. This section traces the institutional environment surrounding foraging, both in terms of *rights of access* to property and the *rights of withdrawal* once there. To borrow from Getzler's comments about the evolution of water rights at common law (Getzler 2004: 350), this overview demonstrates that:

The history of English [foraging] law is a story of the evolution of institutions and agencies able to effectively enforce the norms of commons management.

Throughout much of history, there has been a permissive system allowing for foraging, yet the scope of this permission was very much a function of the prevailing socio-economic climate of the particular time. It should be reiterated that, in law, access to the land and the right to take plants whilst there are two distinct activities and are treated as separate in law. However, they are of course interdependent in that, having the right of access was more often than not the key to whether foraging could take place.

For foragers, the law has broadly framed rights, and yet only selectively enforced them. Local, permissive systems for foraging have endured until disrupted by social or economic pressures or political intervention, after which new negotiated systems eventually emerged. The historical analysis therefore provides support for Ostrom's contention that successful real-world commons are derived from their own peculiarities, histories and subtle institutions that evolve over time as the respective society changes and adapts.

4.3.1 *Ancient Perceptions*

Documented Roman law provides a tangible historical basis for the existence of a fluid concept of access (Salway 1981). Pre-existing legal systems persisted under the Roman occupation giving everyone a right to the air, running water, the sea and the seashore (Bonyhady 1987: 3-4). Highways, rivers, riverbanks and harbours were possessions of the state but open to use by the public. Territory was determined by natural factors such as rivers, valleys and woods. In the waning years of Roman Britain, ownership of land became increasingly concentrated in absentee landlords. Whilst this concentration implied a greater potential for conflict, in practice administration of these properties was *ad-hoc*. With the final collapse of the Roman Empire, a series of heritable kingdoms and the Christian church, in the form of the monasteries, filled the economic and administrative vacuum (Davies 1909). Up to this point in history, it can be argued that foraging, at least for plants, remained unfettered owing to the fact that much of the land accessed for this purpose had not yet been reduced to ownership and the population remained sufficiently low relative to resources.

However, with the coming of the Saxons, a complex, hierarchical delineation of legal rights slowly emerged, as evidenced in the laws of King Aethelberht c. 600 (Higham 1995). The emergent landed aristocracy began to view their property ownership as an absolute and natural right²⁴. By the 600s, the nobility had enclosed a sizeable amount of former Roman lands in a system of hedging and defensive battlements (Salway 1981). Nevertheless, England remained covered by relatively large areas of virgin forest and, with

²⁴ In this context, the meaning of “natural right” would be that later enumerated by John Locke in “Of Property”, Chapter V, Sec. 27. This can be accessed at <http://www.constitution.org/jl/2ndtr05.txt>.

around one million inhabitants, population pressure was only just beginning to exert an influence over cultivated lands. Where land was of marginal value, the landowner took little interest in it. Rather, only parcels with direct value to the holder were factored in law. According to Higham (1995), the hide was “the fundamental measure of that upward flow of goods which characterised relations between the unfree classes and their masters in early England.” From the laws of King Ine and the *Rectitudes Singularum Personarum*²⁵, it is clear that the nobility expected an enormous amount of produce from these lands, but with a few exceptions, this produce was farmed produce – not foraged produce (Attenborough 1922; Hagen 1995; Lemanski 2005). Nevertheless, wild foods including pignuts, wild herbs, nettles, seaweeds, fungi, hawthorn buds, dandelion, rocket, wood sorrel and a wide variety of fruits and nuts have all been recorded in Anglo-Saxon cooking (Hagen 1995). Hagen (1995: 35) states that whilst some of the plants mentioned in the Anglo-Saxon leechdoms “were gathered from the wild, the likelihood is that a number of them were cultivated.”

The early English law codes focused on the interests of the king and the more powerful in society, and consequently, the legal environment surrounding foraging is hard to assess directly. According to Higham (1995), the ‘unfree’ underclass was defined in law basically by its exclusion from access to law, though the law may still have been indirectly applicable to the *rustici paupere*. Therefore, with the exception of gathering wood, the early English law codes do not explicitly cover foraging by people (Attenborough

²⁵ Recorded the rights and obligations of workers and tenants on English estates before 1066.

1922). Rather, the focus is on the foraging by animals and livestock²⁶.

Stenton remarks that the early charters delineated the quality of land for the plough-beasts: sheep were granted pasturage on the marshes and pigs were given woodland reserves as swine-pasturage (Stenton 1985: 282).

A perusal of the charters and place names indicates that marginal woodlands were often owned in common. This is indicated by the place-names that referred to various tribes or “folks” (Stenton 1985: 283). They were used “in accordance with their ancient customs” (Stenton 1985: 283). Beyond this distinction, the forests were essentially places outside the reach of the law making foraging by implication permissible depending upon the custom and enforcement of the local inhabitants. According to Stenton (1985: 684), local courts enforced custom and the thegns and peasants of the shire were thus central to the operation of the local law. The system worked well, and to a large extent survived the Norman Conquest.

The Norman invasion for the most part retained existing approaches to property but consolidated the rights and privileges of ownership in an hierarchical feudal nobility. The resultant feudal system of land management evolved from the absolute power of the feudal overlords under William to the enumerated rights and privileges for the lords in the Magna Carta (Poole 1955). William the Conqueror reorganised the local system of justice but retained all pre-existing laws relating to property rights as stated in the Domesday book. The Coronation Charter or Charter of Liberties of William’s

²⁶ Concluded after a full review of the Laws of Ine in F.L. Attenborough (1922) *The Laws of the Earliest English Kings* (Accessed through Google Books on 11 October 2008). Sections 43 and 44 discuss the fines to be paid for felling trees in a wood by fire and axe. Destroying by fire was a much more expensive activity, as fire is “a thief” (meaning it can spread) but an axe is merely “an informer”. Also, trees that could shelter 30 swine were also highly valued. No mention is made of any other plant life. See also *Rectitudines Singularum Personarum*, as translated by S.J. Lemanski (2005), last accessed 24 September 2011, 12:00 pm.

fourth son, Henry I, delineated numerous specific property rights for individuals and declared the King's ownership of all of the forests. This consolidation of rights and privileges is, according to Dietz (1965), a sign of the growing strength of the feudal nobility that culminated in the Magna Carta in 1215.

As can be seen from the stories of Hereward in Brunswald and Robin Hood in Sherwood Forest, tracts of lawless forestland still existed. Many communities, much more isolated than those of today, depended upon access to the land to gather food, both for personal consumption but also to sell to earn extra income. Under traditional manorial common of *estover* (the right to take necessities from the common), it was not strictly legal to sell foraged food for a profit, yet so long as supply pressures were low, there was likely to be little enforcement against selling the extra berries, wood, bracken or mushrooms that were gathered. Thus, according to Ashley (1973), much of the post-Roman system of laws and customs remained, and in fact were re-exerted via the Charter of the Forest 1217²⁷. This complemented the Magna Carta and confirmed that free men retained access to the forestlands to pasture pigs, collect firewood and, by implication, forage for food (See Lemanski 2005).

Customary and unwritten permissive rights – as well as very different conceptions of ownership – meant many foragers did have *the benefit* of unfettered access to the land. Moreover, in spite of William's legislation for the protection of his deer and his expansion of the royal forests, the operation of the common law persisted and the taking of plants was not considered a

²⁷ Henry III allowed people to take natural produce, including honey and beeswax, from the forest. This remained law until 1971.

crime²⁸. It was not until the Robbing of Orchard's Act in 1601 that it actually became a crime to steal plants that had been grown for food²⁹. According to Stenton (1985: 684),

The forest courts brought the peasant within their jurisdiction under a new surveillance in the interests of the King's sport, but left him in *all other matters* to the familiar justice of shire and hundred [emphasis added].

In other words, decisions as to the nature and application of the laws affecting peasants' access was generally left to the local level.

The population continued to grow and the landscape therefore became increasingly nucleated and characterized by open field systems (Jones and Page 2003). In this way, much land was lost to increasing cultivation (Stenton 1985: 684). There is some direct evidence that the peasants suffered: William expanded royal forests and curtailed the traditions of open access to the New Forest (Stenton 1985: 683-84). By the 12th and 13th Centuries, the English landscape was punctuated with a large number of royal forests that were protected by forest law. Hunting was managed and protected through the Forest Courts³⁰, whose rulings were enforced by the Chief Foresters and the wardens. Most offences related to animals but anything that adversely affected the quality of the hunt might also lead to sanction (Turner 1901). Moreover, as population pressures increased, the licensing of *assarts* – forestland that could be ploughed up with the King's permission – also increased, thus eliminating accessible foraging land.

²⁸ Bl Comm, Vol. 11 at 18; *Stukely v. Butler* [1615], Hob. 168 at 170, 80 E. 316 at 317; See, also, Bonyhady, 200; Halsbury's Laws of England, 2nd Ed., Vol. 9, 508; *R. v. Foley* [1889] 17 Cox C.C. 142.

²⁹ 43 E. 1, c.7, s.1

³⁰ Forest Courts were reformed in 1217 with the Forest Charter

Consequently, with the increasing enclosure of forest lands as hunting grounds, the granting of assarts and the reorganisation of agricultural lands into fiefdoms, it is difficult to conclude that the typical foraging peasant abroad in post-Norman England was quite as free to exploit the resources of the open countryside as he or she had previously. Moreover, regardless of the actual state of access, by the time Henry de Bracton wrote *On the Laws and Customs of England* (1256), the English doctrine that all land must have an owner had emerged, meaning that, in theory at least, access could be legally restricted (Hall 1830: 161-162).

4.3.2 The Importance of the Common Land

As population increased and land ownership became concentrated in fewer hands, the import of the commonly held land grew, especially for those lower down the socio-economic spectrum. The rights of common formed a crucial part of the economy and society of rural England from the Fifteenth through to the Eighteenth Century (Gonner 1912; Neeson 1993). Neeson argues in *Commoners: common right, enclosure and social change in England 1700-1820* that:

[The] common right prospered in the eighteenth century where forest, fen, hill and vale villages had generous common pastures, or where they housed many small occupiers of land and cottages. Here commoners ensured the value of common right with an effective local system of by-laws, and common rights offered some independence of wages and markets.

There were many kinds of rights associated with the commons, but defining them is not straightforward (Yelling 1977). "Rights" in common were sometimes documented and enforceable in local courts; sometimes they were not. Rights that could be exercised by the tenants of a manorial estate

usually extended to rights of pasture (to graze livestock on the commons), rights of *turbary* (to cut peat or turf) and rights of *estover* (to take necessities from the common). These legal rights sat side-by-side with other miscellaneous quasi-legal rights that were often reciprocal or joint rather than common and were not explicitly defined in law (Gonner 1912; Neeson 1993).

Chambers and Mingay (1970) downplayed these implicit customary rights and so to a certain extent did Gonner (1912). Gonner (1912) maintains that the miscellaneous “rights” such as foraging were not part of the traditional system of common rights. However, Neeson (1993: 7) asserts that this perception stems originally from the uncritical use of case reports presented by the Board of Agriculture, which undervalued the social and economic import of the rights and therefore ignored the quasi-legal status of some of them. Moreover, Neeson (1993) maintains that many of these rights were actually enforceable, as even though they arose by custom or on a piecemeal basis, they were often enforceable through local byelaws, field orders and manorial customs (Neeson 1993: 7).

Regardless of the specific rights associated, there is ample evidence in the historical record of the broad importance of the commons to local populations. Whilst pasturage was the most prominent right of the commoner, other benefits included the taking of dead wood, fish, birds, rabbits, peat, and every variety of plant and fungi (Davidson 1982). There is a fair amount of evidence of the prevalence of wild foods in medieval cuisine. Thomas Coglan (1589) lists cresses, skirrets, samphire, sea holly roots, water catrops, nettles, wild thistles and avens as common ingredients in recipes. In addition to being important for subsistence, proportions of a commoner’s income often came

from produce or from items derived from the materials foraged from the common. In just one of the many examples, according to the naturalist Gilbert White, a truffle hunter in the 1780s could get the substantial sum of 2 s 6d a pound at market (Neeson 1993:170). The common was also important as a source of raw materials for the cottage industries of the local villagers such as rush weavers, thatchers, plasterers and wood workers. For instance, in Charnwood Forest commoners burnt bracken into balls to make lye for soap (Neeson 1993: 56). Reeds and rushes were woven into baskets, mats, chair seats, toys, thatch, bedding, rush lights (Mabey 1977).

The seasonal employment provided by the produce was not the commons' only value. Neeson (1993) maintains that gathering from upon the commons reinforced the social connections and kept the village in tune with the change in the seasons. There was a level of freedom and interdependence associated with the common, in that the commoners and grantees often defined what could and could not be taken from the common or the forest. So, in Cartmel, "[...] no one was allowed to gather nuts before Nutday, 1 September, or shear bracken for thatching, bedding, or burning before Brackenday, 2 October" (Clay 1990: 170). Most every manor protected its common against trespass and employed field Reeves to enforce the field orders and by-laws. Local courts tasked juries with assessing guilt and, where applicable, imposing fines. According to Neeson (1993: 154), this local system operated according to consensus and cooperation and this system marks a continuation of the local approach to adjudication of earlier times.

Using Ostrom's terminology, localized systems of laws and norms governing the usage of wild plant foods were 'optimal social arrangements'. Though the ostensible power of the estates increased, a local system of rights and privileges continued to function. These specific rights or privileges, once acquired, were subject to numerous social, political and legal influences over time and more often than not changed accordingly, depending upon the local circumstances. Importantly, these systems apparently functioned reasonably well (Dahlman 1980). As noted by Rose (1986: 746), "[c]ustom, in short, can tame and moderate the dreaded rule of capture that supposedly tends to turn every commons into a waste".

An illustration of this evolutionary system and its subsequent reflection in the law can be found in the right to take bracken from the hillside. Bracken was once important to rural communities (Rymer 1976). Rural farmers and peasants originally used it as litter for livestock and sometimes as thatch for roofing. With the onset of the Industrial Revolution and the growth of the glass industries, it became important for burning potash. This led to supply pressures that could no longer be managed through the original customary arrangements. The conflicting issues of access to this valuable resource were eventually addressed more formally through village byelaws (Winchester 2006). Over time, as glass-making technology evolved, the bracken was no longer needed and the village byelaws became redundant – and forgotten.

Eventually, the law began to catch up with emerging social and economic interests. The inexorable increase in population and the diminishing supply of land meant that landlords began to try and eliminate ill-defined rights, or at the very least limit their scope. Bushway (1981) notes

this in the changing pattern of legal sanctions regarding timber and wood. Timber became increasingly valuable in the 18th Century, particularly in light of the French wars. In 1766, in a major departure from previous customary practice and the Forest Charter, a new statute³¹ made illegal much of what had been customarily acceptable taking before³². Moreover, the penalties were harsh: fines, public whipping, imprisonment and, after the third offence, transportation for seven years.

Even where the commodities were not as valuable as timber, the landlords eventually began to exert more control over the commons. For example, in 1779, Earl Spencer threatened to take people before a magistrate to prevent 'nutting' (gathering hazelnuts) in his woods (*Northampton Mercury* 23 August 1779, reported in Neeson 1993:163). Since imprisonment was not a valid punishment for trespass in these circumstances, he could not do much to prevent the takings (Neeson 1993: 163). So, in a move that became increasingly common throughout England, he resorted instead to closing his woods (through fencing, hedging and notices prohibiting trespassing) and thus denying the 'nutters' access (Neeson 1993: 164). The landlords throughout England began asserting a range of exclusive property rights – whether they actually possessed these rights in law or not - and were increasingly supported by Parliament in their efforts to do so.

4.3.3 *The Acts of Enclosure*³³ and the Agricultural Revolution

By the 1700s, agriculture in Britain was beginning its transformation into a major industry, which, by the 1850s, would result in it becoming a net exporter

³¹ 6. George III, c.48.

³² After the statute, it was an offence to: “wilfully cut or break down, bark, burn, pluck up, lop, top, crop, or otherwise deface, damage, spoil, destroy or carry away any Timber tree...” The act covered most trees but also underwood, hedgewood, hollies and thorns.

³³ Many of the Acts are referred to as Inclosure Acts (e.g. the Act of Inclosure of 1801).

of food to the rest of the world. The reasons for this development are complex and continuously debated, but most scholars agree that the enclosure of common lands was part of the political decision to promote industrialized agriculture. This era was a legal watershed as well. The common law was increasingly proving inadequate in addressing the rapidly changing economic circumstances, and thus a shift from the courts to Parliament began. The process of enclosure eliminated conflicting rights of access and helped to increase the productive use of increasingly scarce agricultural land. This 'possessive individualism' corresponds to Lockean notions of an individual's right to own property and the fruits of their labour in improving that property.³⁴ This idea was central to the movement to commercialize and expand agriculture.

Enclosure involved the laying together of scattered properties, the abolition of common rights as well as the familiar hedging and ditching of property (Yelling 1977: 5). It could be brought about through the actions of a landowner, through agreement (consensus or Chancery Decree), or, in the later stages of what became known collectively as the Enclosure Movement, by an Act of Parliament (Gonner 1912; Neeson 1993). Enclosure was a complex process whose full nature and import depended upon the time and the place where it occurred (Yelling 1977).

This social and corresponding legal process meant that the British landscape and the role of the commoner were transformed (Chambers and

³⁴ See, John Locke, *The Second Treatise of Government* (republished: Hackett, Cambridge 1980) 308. Note Locke's language: "He that is nourished by the Acorns he pickt up under an Oak, or the Apples he gathered from the Trees in the Wood, has certainly appropriated them to himself. . . I ask then, When did they begin to be his? And 'tis plain, if the first gathering made them not his, nothing else could. That labour put a distinction between them and common." (Locke, *Second Treatise of Government*, 28). It should be noted, however, that this was written in reference to the situation in America with respect to Native American lands.

Mingay 1970; Martins 2004). Land was drained, hedged in and new techniques improved productivity thereby making farming an increasingly lucrative business and accelerating the process of rural transformation. Mortality fell through the 18th and 19th centuries, and, in spite of emigration, the population rose to such an extent that the pressure on the land merely to feed such a large population grew intense (Woodward 1962). Accompanying the social advancement of the landowners was the urban movement of the small farmer to the factories; however, the degree to which the enclosure of the commons was responsible for this remains in contention (Thompson 1991).

The Enclosure Movement meant a loss of opportunity to forage due both to the change in the approach to customary rights and in the nature of the land usage. According to Gonner (1912: 368), the poor in particular lost their ability to use the commons in the ways that they had in the past, as their claims were often viewed as being by usage rather than by right. Moreover, the local communities were often so fundamentally altered through urbanization that not only did the customary practices often cease - the knowledge surrounding them was lost. Neeson (1993: 184) summarizes:

Above all, villagers in enclosed parishes took their wood or their berries under different circumstances. After enclosure they had to enter fenced land that had been allotted to one or more of the local farmers or landlords, they may have had to ask for permission, and their enjoyment was uncertain. They were gathering as a privilege not as a right. As time went on, they were more and more unwelcome: getting nuts and wood gave alibis to poachers, berry pickers frightened the pheasants, furze became prized as a cover for birds.

The extent to which traditional gathering practices continued is only anecdotally documented, and it is necessary first to explore further what the

villager's perceptions of access might have been. If individuals did not believe they could access their foraging 'patches', and consequently no longer ventured onto them, then obviously foraging would not have taken place.

Sir Frederick Pollock maintained, in *The Land Laws* (1883: 14-18), that, in practice, individuals still enjoyed almost unfettered access to all uncultivated land in Britain (Pollock 1883: 14). He declared that, "against a trespasser not in pursuit of game the only remedy is civil action, and no jury would give substantial damages, nor any judge give costs, against a trespasser on a wild moor or down who had neither molested the owner, disputed his title, nor injured his property." Therefore, according to Pollock, because a trespasser's actions could not realistically be challenged in court, the public would have theoretically enjoyed some measure of *de facto* rights of access in spite of the erosion of the *de jure* common law rights. This is evidence again of a long-standing dichotomy between the implicit right to access land for the benefit of foraging and the explicit right to do so. However, even by Pollock's interpretation, the land that was accessible [i.e. uncultivated] was decreasing. Moreover, the forager may have perceived that his or her access was now limited. Bonyhady (1987: 3) lends support to this in asserting that the *de facto* rights that did remain were significantly eroded, and his assessment appears supported by the Parliamentary and Judicial record. The Enclosure Acts between 1760 and 1845 meant that much of the land remaining "in common" now became freehold, and therefore was taken into private hands. And, given that land ownership was at the time closely tied to representation in Parliament, it stands to reason that the trend in statute law would favour the enclosing landowners who were promoting the

consolidation of agricultural holdings. With legislation behind them, it was up to the landowners and the courts to enforce the extinguishment of previously held common and customary rights³⁵.

Though the diminution of rights of access was less clear-cut in case law than in statute, it is nevertheless evident in the court records, which, whether through notions of “judicial convenience” or as part and parcel of the social and political trends promoting private property, continually chipped away at the rights of access to the open countryside. First, judges concluded that rights of access to land via footpaths, bridleways and carriageways was not presumed as had been the historical situation, but rather was at the discretion of the landowner³⁶. In *Blundell v Catterall* [1814]³⁷, the court held that, in the absence of custom or prescriptive right, a member of the public had no common law right to bathe in the sea or to pass over the seashore owned by the Lord of the Manor of Great Crosby. Further, in *Race v Ward*, [1855]³⁸, the finding demonstrated that even a customary right can be overlooked where the landowner possessed a reasonable fear [undefined] of over-exploitation. The case law also lends some support to the notion that in addition to access, the rights associated specifically with foraging were increasingly constrained. In *Gateward’s Case* [1607]³⁹, the court held that local inhabitants did not have customary rights of taking in their locality.

³⁵ As evidenced in the rights to gather wood (set out in Charters detailing the exact extent of the right) from Grovely Wood, where the right was lost via legislation but then curiously regained in the 18th century with the practice of an annual ceremony. RW Bushaway, Custom, Crime and Conflict in the English Woodland (1981) *History Today* 31(5) 37.

³⁶ E.g., legal history cited by the court in *Jones v Bates* [1938], 2 E.R. 237.

³⁷ 5 B. & Ald. 268, 290-92; 106 E.R. 1190; All E.R. Rep. 39; followed by *Brinckman v Matly* [1904], 2Ch 313; All E.R. Rep 941.

³⁸ 4 E. & B. 702; 119 E. R. 259. Note, however, that the subsequent history of this case explicitly stated that the right of access to the well may have a legal origin and was not extinguished by inclosure (1857) 21 JP 678, 7 E&B 384.

³⁹ 6 Co. Rep. 59b; 77 E.R. 344.

Likewise, in *Steel v. Houghton* [1788]⁴⁰, the judges determined that the poor had no general right of gleaning from a privately owned harvest field.

One probable consequence of these decisions at common law was to collapse emerging legal principles and ideas of “possessive individualism”. The decisions of the courts were respected and, importantly, mostly enforced. This, coupled with an increasingly reliable system of informing the public of these decisions, may have meant that, whether enforced or not, individuals engaged in foraging now faced tangible and consistent legal restraints that almost certainly affected their ability – and willingness – to access land for foraging. This explains some of the sentiment behind John Clare’s famous stanza:

Fence meeting fence in owners little bounds,
Of field and meadow, large as garden grounds,
In little parcels, little minds to please,
With men and flocks imprisoned,
Ill at ease.

4.3.4 The Backlash Against Constraints on Access

“Possessive individualism” and restraints on access to land in England faced increasing opposition at the turn of the 20th Century. According to Bonyhady (1987: 10), after the incremental diminution of public rights up to the 19th Century, individuals began to invoke private rights and the court responded with several decisions in the public’s favour. Access via traditional footpaths was protected, using the doctrine of implied dedication, in a series of decisions⁴¹. *Dawes v. Hawkins* [1860] gave rise to the aphorism: “Once a

⁴⁰ 1 Hy. Bl.51; 126 E.R. 32; followed by *Folkestone Corp v. Brockman* [1914], AC 338, 12 LGR 334.

⁴¹ *Fitzpatrick v Robinson* [1828] G.IV 585 at 594; *Bryant v. Foot* [1867] 2 QB 161 at 181. For a detailed discussion of this trend, see, CI Elton, *A Treatise on Commons and Waste Lands* (Wildy & Sons 1868). The doctrine of implied dedication refers to the appropriation of land for the use of the public. The dedication is implied from the owner’s conduct from which intent can be inferred. Note that the courts only reluctantly inferred intent as can be seen from the result in *Attorney-General v.*

highway, always a highway” when Justice Byles reasserted the common law rule that once a highway is dedicated, the public’s right of way can only be lost by recognized procedures⁴². Common law rights of access via footpaths were protected as declared in *Jones v. Bates* [1938] wherein Justice Scott stated, *inter alia*: “In short, it is of real public monument that no genuine public footpath should be lost, without statutory action to close it⁴³”.

The judicial retrenchment was eventually matched by a statutory opening up of public access. The 1925 Law of Property Act (c.20) created a public right to ramble over all common land in urban districts. Before this act, there was no general established statutory right of public access to a common except for town and village greens⁴⁴. The Rights of Way Act 1932 enshrined public rights of way in law⁴⁵. The 1949 National Parks and Access to the Countryside Act helped to clarify the location of footpaths. Yet, as further explored below, the Countryside Act 1968 and the Wildlife and Countryside Act 1981 have provided protection for existing public rights of access but do not lead to any substantial change in the *de facto* legal situation for foraging. Thus, according to Bonyhady (1987: 14):

[A]t common law English landowners are theoretically entitled to exclusive occupation and enjoyment of their land. Consequently, any invasion of land without permission or right is a trespass, even if no damage results. Any taking of sand, soil, wild plants or wild animals is also tortious even if the landowner suffers no more than trivial harm.

Antrobus [1905] 2 Ci.188, wherein the court declared that access granted by the property owner to Stonehenge was permissive only and did not imply a public right of way.

⁴² [1860] 8 CB (NS) 848.

⁴³ [1938] 2 All E.R. 237, 249.

⁴⁴ Report of the Royal Commission on Common Land 1955-1958: App. Iii, para. 57.

⁴⁵ The ineffectual National Parks and Access to the Countryside Act 1949 had previously established a procedure for creating public access but was little used.

Accompanying increased access was a corresponding increase in legislation designed to criminalize specific behaviour in the countryside⁴⁶. The laws regulated damage to all variety of “property” and imposed a hierarchy of draconian criminal sanctions. Many of these acts appeared to apply to plants that might have been foraged. For instance, 9 Geo. 4, c. 56, s.1 made it an offence (in Ireland at least) to damage hedges, crops, trees, wood, underbrush, orchard, garden, crops, vegetables, *plants* [ital. added], land or other matter or thing growing on real or personal property of any nature or land whatsoever. The penalties for summary conviction could amount to two months hard labour.

However, in a vitally important criminal case addressing the Malicious Injuries to Property Act 1852, the court declined to apply these provisions to non-cultivated plants. They also concluded that plants growing on the realty were distinct from the realty itself⁴⁷. In *Gardner v Mansbridge* [1887], the landowner objected to a forager’s harvesting of field mushrooms. The court held that, as the mushrooms had grown spontaneously, and were not thus cultivated produce, they did not constitute property as defined by the Malicious Injury to Property Act 1861. This is in spite of the fact that the complaining farmer did actually harvest and sell the mushrooms himself every year, and, on average, obtained the not inconsiderable sum in the 1880s of £7. This case implied that taking something that is growing on the land couldn’t damage the land itself⁴⁸. Justice AL Smith concluded that the words

⁴⁶ E.g., Malicious Damage to Property Act 1820, s.6; Malicious Injuries to Property Act 1827, s. 24; The Game Act 1831, s. 35; Protection of Animals Act 1911, s. 15 (a); Theft Act 1968; Malicious Injuries to Property Act and the Criminal Damage Act 1971; et seq.

⁴⁷ *Gardner v Mansbridge* [1887] 19 QBD 217.

⁴⁸ This was the court’s interpretation of the specific provision in the statute s. 52, Malicious Injuries to Property Act 1861.

of the Act “damage to real property” did not mean “loss to the owner thereof”. He goes on to state that to hold otherwise would “render a person liable to be convicted of a crime and sent to hard labour for two months for merely gathering primroses, blackberries, or the like, [...]”.

As throughout much of the fluid history of the law surrounding foraging, social and legal institutions only rarely intervene to govern the taking of plant life for personal use. Justice Smith’s choice of words is at once dismissive (how could something so insignificant be a crime?) and fundamental (how could something so basic be declared damage?). Thus, even where statutes are crafted to control access and the taking of plants, the interpretation and application of the law seemed to indicate that foraging was either of little interest in a property rights sense or was something that was inherently public in nature.

4.3.5 Conclusions

This section has traced the historical environment surrounding access to land and, somewhat separately, the rights and ability to forage on this land once there. It highlighted the evolution of the relevant law from Roman times up to the early 20th Century and concludes that, throughout much of history, there has generally been an ancient, uncodified customary system allowing for access for foraging, particularly where the land was considered marginal to other uses. The scope of this system did vary and was very much a function of the prevailing socio-economic climate of the time. The Acts of Enclosure, which helped to pave the way for the industrialization of English agriculture, altered the complex nexus of rights and customs covering the commons and instigated a fundamental change in the forager’s relationship with the land.

Historically, the existence of a right of access was more often than not the key to whether foraging could take place. As accessible land declined, the scope for foraging necessarily diminished as well, regardless of the fate of the local “rights” to forage. As shall be explained in the next section, under modern law, access is no longer the most important key – rather access is much more permissible in law than in the recent past; whilst foraging, once generally ignored in the legal provisions, now faces increasing statutory restrictions.

4.4 MODERN PERCEPTIONS OF ACCESS AND FORAGING

Up to this point in the discussion, access for the purposes of taking plant life has often had a local dimension. The bracken cutters and those supplementing their diets and incomes have lived close to the land upon which they picked. They had social relationships with the property owners, adjoining farmers and fellow pickers. Many of the gatherers, though they might not have perceived it themselves, were part of an inter-connected system. The transformation of the English economy in the 20th Century has resulted in an increasingly urbanised population. Thus, people today are generally casual visitors to the countryside, and consider roaming across the landscape to be a sort of ill-defined right. However, there is little clear notion amongst most about the perceived right to gather plants or to utilise other resources once in the countryside. Those who now gather wild foods are as likely to have driven from distant communities as they are to be local, and it is more likely to be done as a hobby than out of necessity. Even the locals that do remain very often have lost knowledge of the location and uses

of plants and may place value on access for other reasons, such as the ability to ramble, walk dogs or picnic.

Section 4.4 traces the existing legal environment surrounding foraging, both in terms of the right of access to land and the right to take the plants themselves. Prior to the enactment of the Countryside Rights of Way Act 2000 (CROWA), both statute and case law indicated that non-commercial foraging was unlikely to face sanction as ancient though uncodified customary legal rights prevailed. However, CROWA has altered the legal environment governing access to land and to some extent the right to take plant life. The specifics of this legislation shall be examined in some depth, as shall the consequences for foraging. Under CROWA, whereas access used to be the key to the ability to forage, this is no longer the case. The forager can now make clearer decisions as to his or her right to be on any given land – but whether he or she will be permitted *in law* to forage whilst there remains more complicated.

4.4.1 Rights of Access and the Countryside and Rights of Way Act 2000

During the 20th century, statute and common law began to strongly conflict with public demands for access to the countryside, culminating in the mass protests at Kinder Scout (Hill 1980; Shoard 1987). However, courts proved reluctant to infringe upon the rights of landowners and no general right to roam was initially established⁴⁹. Parliament's early attempts at opening up the countryside, such as with the Access to Mountains Act 1939 and the National Parks and Access to the Countryside Act 1949, were too complex and ineffective. Consequently, prior to the Countryside and Rights of Way Act

⁴⁹ Courts referred continually back to the controlling decision in *Blundell v Catterall* [1821] 5 B. & Ald. 268.

2000 [henceforth CROWA], there was only a statutory right of public access over 20% of the common land in England and Wales⁵⁰. However, in 1997, the issue of public access returned and legislation to open up the countryside was finally drafted. With the enactment of CROWA, specific rights of access over registered common land⁵¹ and “mapped open country”⁵² are provided. As of October 31, 2005, a positive right to enter and remain on ‘access’ land for purposes of “open air” recreation exists⁵³. *Access land*, under Section 1 of CROWA, is land that is:

1. Shown on a map in “conclusive form” as either open countryside (mountain, moor, heath or down) or registered common land (Commons Registration Act 1965).
2. More than 600 metres above sea level.
3. Registered common land in an area where no map in “conclusive form” has been issued.
4. Is dedicated for the purpose of access by its owner under s. 16.
5. Is not:
 - a. Land that has been ploughed or drilled to plant or sow crops or trees in the last 12 months.
 - b. Covered by buildings.
 - c. Within 20 metres of a dwelling or a building used to house livestock.
 - d. Used as a park or garden.
 - e. Used for extracting minerals for surface working.
 - f. Used for railway, tramway, golf course, racecourse or aerodrome.
 - g. Covered by telecommunications towers (Telecommunications Act 1984, schedule. 4, as amended).
 - h. Habitually used for training horses.
 - i. Used by the military.

⁵⁰ Report of the Stakeholder Working Group on CROWA: Appendix A www.publications.parliament.uk/pa/id200708/ldhansrd/text/80514-0014.htm; accessed 8 February 2008, 8:30 am; See, www.countryside.gov.uk for further details.

⁵¹ Common land has traditionally been defined as land that is subject to long standing rights, such as the rights to graze animals or to take wood, bracken or fodder. As a result of the transformation of the English economy in recent decades, access to common land is now governed less by social relationships and more by legislation and structural controls. Thus, with the Commons Registration Act of 1965, common land is now defined as that which is registered as common land in the commons registers held by local authorities.

⁵² As required by Section 11(3) CROWA. Current maps of access land are available at www.openaccess.gov.uk and through local authorities and libraries. For a detailed discussion of some of the issues involved in the mapping process, see Stephen Saxby, ‘Public Policy and the Digital Geospatial Representation of Designated Land Use in the UK: Part II,’ *Journal of Environmental Law* (2007) 19(2) 227-246.

⁵³ Note that “open air recreation” is left undefined.

CROWA directly limits the right of landowners to exclude, consequently individuals now have access to open, uncultivated land covering around four million acres in England and Wales (Sydenham 2002). Simply, a right now exists to roam on foot over mountain, moor, heath and down as well as registered common land. This right also may extend to coastal land and to any land that landowners choose to dedicate as access land. Land over which public access already exists is not covered under CROWA, and access will continue as previously⁵⁴.

Whilst this appears to be straightforward, the majority of the rambling population does not necessarily fully understand limitations on the right nor comprehend section 1 of CROWA. Whilst the rights of access over common land are fairly clear,⁵⁵ the definition of “open countryside” is still somewhat confused. Open country is land that appears to consist wholly or predominantly of mountain (any land situated more than 600 metres above sea level) or moor, heath or down (unless they consist of improved or semi-improved grassland). The maps used for access land must be “conclusive” and the boundaries of common land must either be known or clearly identified⁵⁶. Access land will not include *excepted land* (s. 1(5)(a-i)) even where this is on common land or is mapped as open country. It may be difficult for the walker to know which is which unless the landowner puts up explanatory notices. Moreover, where the land is designated as access land,

⁵⁴ Such as common land covered under s.193 of the Law of Property Act 1925 or national park land covered by the National Parks and Access to the Countryside Act 1949.

⁵⁵ In 2006, the Commons Act replaced the Commons Registration Act of 1965 and is aimed at protecting the common land and promoting sustainable farming, improving public access and biodiversity. It is too early to tell what the full implications of this act will be for issues of public access, but it establishes a National Common Land Stakeholder Group tasked with advising on the implementation of the act and management of the commons affected.

⁵⁶ Current maps of access land are available at www.openaccess.gov.uk and through local authorities and libraries.

certain *exclusions* may still be imposed (Sydenham 2002). Thus, a landowner may refuse access for up to 28 days a year, excluding bank holidays and a certain portion of the summer weekends. Dogs can be banned where grouse shooting or lambing occurs. Natural England or the National Park Authority can approve further exclusions⁵⁷.

The enactment of CROWA required delicate negotiations with landowners and conservationists. Besides resenting the potential loss of privacy⁵⁸, landowners feared that open access might lower the value of their property and increase their insurance costs. Conservationists worried that an increase in foot traffic would cause irreversible damage to wild life and heritage sites. As a consequence, the Act made clear that the new right was only for “quiet enjoyment” on foot and designated authorities such as Natural England and local councils will be given the power to make and enforce byelaws governing the areas that have been opened for access (CROWA s. 1(2) and 17 (1 – 8)).

CROWA also expanded the range of pre-existing *restrictions* to limit what a walker could do whilst ambling across newly opened lands⁵⁹. Exclusions may be made for land management reasons (s. 24) including nature conservation (s. 26). To create these exclusions, the relevant authorities should consult any local access forum that exists in the area (s. 27(1)). Finally, for the walker who wishes to forage, CROWA does not open

⁵⁷ Rights granted under s.21 CROWA. Natural England took over from the Countryside Agency via s. 4 of the Natural Environment and Rural Communities Act 2006, viewable at: www.uk-legislation.umso.gov.uk.

⁵⁸ E.g., when Madonna and Guy Ritchie protested that CROWA would undermine their privacy on their Ashcombe House Estate. See, Planning Inspectorate, Appeal Decision, CROWA/3/M/03/1076 (17 June 2004), at 4-5, paras 20-22; accessed May 20, 2010, 9:50 am via www.planning-inspectorate.gov.uk/access/appeals/central_southern/documents/1076.pdf.

⁵⁹ Schedule 2 of the National Parks and Countryside Act 1949 as expanded in Schedule 2 of CROWA 2000.

up access for the purposes of foraging and, in fact, prohibits doing so as is discussed in detail below (CROWA, Schedule 2(l)).

4.4.2 A Right to Forage?

Access to land, access for purposes of foraging, and the actual taking of plants are distinctive activities in law and the transformation of social and ecological relationships has clouded our perceptions surrounding foraged resource usage. Though access is a prerequisite for foraging, an individual may have access and still not have the right to pick plants on that land.

As discussed above and in some detail in Bonyhady, tangible rights of access were steadily eroded such that by the time of the decision in *Harrison v. Duke of Rutland* [1893]⁶⁰, the public possessed only a limited right to pass over a right of way, and no right to do or to take anything whilst doing so. Thus, at common law all plants belong to the landowner and so the public have no right to them. Under the predecessor to CROWA, the National Parks and Access to the Countryside Act (NPACA) 1949, it was probably forbidden to forage (See, Schedule 2(1)(h))⁶¹. It remains the case that even plants growing 'wild' are the property of someone⁶². Therefore, where an opportunistic forager takes uncultivated plants from land, this can still theoretically be considered both a trespass and a conversion unless the landowner authorises it, though the landowner may be deemed to have impliedly authorized gathering on his or her land where he fails to take

⁶⁰ 1 QB 142.

⁶¹ Schedule 2(1)(h) is exactly the same restriction as under CROWA Schedule 2 (1)(l). However, the Act was notable by its ineffectiveness and this section would not have acted as a *de facto* barrier to anyone wishing to forage.

⁶² See the Code of Conduct for the Conservation and Enjoyment of Wild Plants, available at www.bsbi.org.uk or www.jncc.gov.uk for detailed information on the types of plants that are protected.

preventative action. This presumably includes maintaining fences and posting “No Trespassing” signs.

Actual restraints on foraging are fairly limited, however, as evidenced by the decisions in court and lack of any extension to criminal law. As per *Gardner v Mansbridge* [1887], where the taking is regarded as having little monetary value, uncultivated or forming part of the normal enjoyment of the countryside, there is no indication that the courts will actually impose sanctions. Also, after much debate as to whether taking wild plants should be made a crime in certain circumstances, the Criminal Law Revision Committee decided in 1966 (CLC 1966: 22-23) that,

A person should not be guilty of theft by picking mushrooms or other fungi, or flowers, fruit or foliage, growing wild unless he does so for reward or for sale or other commercial purpose.

This position became enshrined in section 4(3) of the Theft Act 1968 (See, also, Bonyhady 201). The burden was placed on the prosecution to establish “commercial purpose” which made it difficult to prove. Furthermore, the subsequent Criminal Damage Act 1971, s.10 (1) repeats that for purposes of the Act, property,

Does not include any mushrooms or the flowers, fruit or foliage of any plant growing wild on land (s. 10(1)(b)), so long as the plant is not uprooted or significantly damaged.

The Criminal Damage Act, unlike the Theft Act, contains no commercial purpose test. An interesting and contrasting issue arises where the plants are considered to have a significant monetary value, where they may be subsequently sold or traded or where they are specially protected⁶³.

⁶³ See discussion below and the Botanical Society of the British Isles for guidance as to what plants are specially protected www.bsbi.org.uk and www.jncc.gov.uk.

Commercial foraging is problematic in that both common and statute law are clear in making it impermissible, but the courts have yet to sanction this through reported decisions. The court's reluctance to clarify the issue raises the question as to whether, where private foraging is permitted, commercial foraging remains *de facto* impermissible? In November 2002, the court had the opportunity to test the permissibility of commercial foraging. Brigitte Tee-Hillman, a wild mushroom forager in the New Forest was arrested and charged under the Theft Act 1968 for picking for commercial purposes without the permission of the land owners⁶⁴. Mrs. Tee-Hillman had been picking in the New Forest for almost 30 years and had become a supplier to top chefs throughout Britain⁶⁵. After the New Forest became a national park, the Forestry Commission decided to limit the activities of foragers such as Mrs. Tee-Hillman, who were viewed as picking for commercial gain and in violation of new codes of conduct, such as the Mushroom Picker's Code of Conduct⁶⁶. The judge eventually dismissed the case as a "waste of public funds" and the Forestry Commission for Dorset and the New Forest, who are the landowners, were forced to pay costs. The Forestry Commission have since reached a private agreement with Tee-Hilman whereby she is licensed to forage for mushrooms in the New Forest.

However, because of the judge's dismissal of the case, the precise position for commercial foragers remains uncertain. Moreover, the fact remains that it is difficult to implement any restraint upon commercial foraging

⁶⁴A criminal case was brought and dismissed at the Bournemouth Crown Court. The articles refer to a subsequent civil case brought by the Forestry Commission in Southampton Crown Court. For a history of the case and its aftermath, see, <http://bbc.co.uk/1/hi/england/hampshire/6170458.stm>, last accessed 20 August 2011, 8:55 am.

⁶⁵ Mrs. Tee-Hillman's website is: www.wildmushrooms.co.uk

⁶⁶ The Mushroom Picker's Code of Conduct can be found at www.britmycolsoc.org.uk

activity – simply because exposing potential violations is very time consuming. Whilst this example does not establish any precedents, it does highlight judicial unwillingness to venture into areas deemed to be of little public interest and where there is a complex, permissive history.

CROWA does not expressly create any criminal offences or civil rights against foraging, nor does it affect any existing legal rights (Sydenham 2002).

However, it does expand upon Schedule 2 of NPAC 1949, the “General Restrictions on the Exercise of Rights of Access”, and defines foraging whilst on newly designated access land as being impermissible. That is, a person becomes a trespasser on the land⁶⁷ where, inter alia:

1. He or she commits a criminal offence [Schedule 2, para. 1(e)].
2. *Intentionally removes, damages or destroys any plant, shrub, tree or root or any part of a plant, tree, shrub or root [Schedule 2, para. 1(l)].*
3. Engages in any activity that is organised or undertaken (by him or any another) for any commercial purpose [Schedule 2, para. 1(t)].

As noted above, access may also be restricted to conserve flora, fauna or geological or physiological features of the land [Ss 26(1), 3(a), 27, 31]. This could easily be used to prevent access for purposes of foraging, even were it permissible under the Act. Restrictions 1 and 3 merely reaffirm that commercial foraging is not permitted in the defined circumstances. Restriction 2(l) above is unequivocal in appearing to prohibit foraging of any kind. Importantly, it also therefore turns anyone found foraging on access land (as defined under CROWA) into a trespasser. Whether and to what extent these

⁶⁷ As per CROWA, Part 1, Chapter 1, S.2, 4(b) and (c). Trespassing bars the walker from the designated land for 72 hours.

restrictions shall be enforced remains an open question. However, their legal implications are clear – foraging is not permitted under CROWA.

Like the Acts of Enclosure, CROWA is a product of the prevailing social and political climate. Access to land for recreation is vitally important to the inhabitants of a small and crowded island. However, foraging does not elicit such powerful feelings and thus has not been at the fore of legislative decisions. Thus, the prohibition that perforce covers foraging was reaffirmed during the process of negotiation for opening access. It allows some measure of protection for the landowner over their plant life whilst also providing a mechanism for conservation and habitat protection. Confusingly, there are real limits to this protection. In the “Note for Information on Schedule 2,” it states:

Activities undertaken on land pursuant to a voluntary agreement with the owner of that land are not affected by the general restrictions. There is nothing in the Act to prevent those continuing as before.

This implies that, where a walker has been foraging on land with the owner’s knowledge or acquiescence, that in the absence of any issues concerning conservation, the restrictions under CROWA may not apply. A right to forage may still exist by private right (e.g. express or implied license or contract), through private or local Acts or even permissively. Furthermore, it should be noted that the restrictions only apply to newly opened access land; access may still be permitted under other enactments (Chapter 1, s. 15). Thus, old foraging haunts – so long as they do not fall under any byelaws or sit in conservation areas – probably remain covered under the permissive regimes that existed prior to CROWA.

4.4.3 *The Implications of Conservation Legislation and Local Byelaws*

The Botanical Society of the British Isles Code of Conduct for the

Conservation and Enjoyment of Wild Plants,⁶⁸ written with the Joint Nature Conservation Committee, the official advisor to the U.K. Government, gives the general rule that:

Non-commercial gathering of berries, nuts and mushrooms for the table is a traditional use of the countryside and probably does no harm to the plant, providing it is carried out in moderation and the plant is common.

This, and the discussion in Section 3, is bracketed with the proviso, “so long as no conservation legislation or byelaws apply.” Conservation legislation does now affect numerous species of wild plant and there are an increasing number of byelaws that affect both access and rights to forage and these must be discussed in some detail.

With the National Parks and Access to the Countryside Act of 1949 and The Wild Creatures and Plants Act 1975 (superseded by the Wildlife and Countryside Act 1981), all wild plants were given protection from being intentionally uprooted without the permission of the landowner or occupier. Furthermore, in 1992, the EU passed an important instrument for the protection of plants: the Habitat and Species Directive⁶⁹. This was translated into U.K. law via the Conservation (Natural Habitats EC) Regulations 1994 and led to a list of protected plants as well as the requirement to establish areas for the protection of important habitats. In the U.K., this is now covered under the Wildlife and Countryside Act 1981, as amended by CROWA 2000. Sections 13(a) and (b) of WCA (1981) extend special protection to plants that

⁶⁸ www.bsbi.org.uk or www.jncc.gov.uk.

⁶⁹ Council Directive 92/43/EEC, OJL 206, 22.7.92; Regulation (EC) No. 1882/2003, 29/9/03; Council Directive 2006/105/EC, 20/11/2006.

are either in danger of extinction or likely to become so (as listed in Schedule 8), in that they may not be uprooted or picked (s. 22(3)(a); 13(1)(a), 27(1)). Plants listed under Schedule 8 are protected against picking, collecting, cutting, uprooting, possession and sale⁷⁰. This long list of endangered plants is given as an appendix to the Code of Conduct for the Conservation and Enjoyment of Wild Plants⁷¹. As Schedule 8 does not list any of the most commonly foraged plants, they presumably remain safe to pick with the landowner's permission.

Through the Habitat and Species Directive, byelaws for the protection of particular species and habitats can now be enacted. A Site of Special Scientific Interest (SSSI) is a conservation area created to help protect the "processes which help maintain an area".⁷² The law protects the land from development, damage and neglect and owners of SSSI land must consult Natural England⁷³ if they want to carry out any activities that may affect the site. Further, CROWA gave Natural England the power to ensure better management and protection of habitats. Thus, National Nature Reserves, Nature Trusts, Forestry Lands, National Trust land and all sites of Special Scientific Interest are protected and the plants contained in them cannot be touched without the permission of the relevant conservation agencies. In addition, local authorities have the power to pass byelaws for the total protection of all plants contained in designated nature reserves⁷⁴.

⁷⁰ These requirements come from the Council of Europe's Bern Convention (Convention on the Conservation of European Wildlife and Natural Habitats).

⁷¹ <http://www.bsbi.org.uk>

⁷² www.english-nature.org.uk/special/sssi

⁷³ English Nature became Natural England in 2006.

⁷⁴ National Parks and Access to the Countryside Act 1949, ss. 20(2)(b), 21(4); Wildlife and Countryside Act 1981, s. 35(4).

It has now become common practice in general byelaws of most of these sites to include a section stating that it is not permissible to take the fruit, roots or foliage of any plants in the designated reserves. Someone rambling through a wood may encounter signs denominating an organisation, such as the National Trust, who looks after the flora and fauna⁷⁵. These signs usually state somewhere that the area is regulated by byelaws and these are often included on the back of the sign or a separate notice board. In general, where the rambler hopes to pick a flower or seedpod from a plant in the woodland, the byelaws will probably determine whether, in the absence of any private rights, it is acceptable to do so.

For instance, the National Trust byelaws state under Section 2(b):

No unauthorized person shall dig up or remove, cut, fell, pluck or injure any flowers, plants, fungi, moss, ferns, shrubs, trees or other vegetation growing on Trust property or remove any seeds thereof or injure any grass or climb any tree.

This prescriptive section has obvious implications for plant taking on National Trust land. Similar provisions apply to land run under the auspices of the Forestry Commission⁷⁶. As increasing amounts of land has come under the care of quasi-governmental organisations and their associated byelaws, this will *de jure* limit the land that is available for purposes of foraging. Whether it will actually limit these activities on a day-to-day basis is a somewhat different matter. As with CROWA, the intention of the prescriptive sections in conservation legislation was not specifically to prohibit foraging, but to provide a tool whereby land managers could protect species and habitats in their

⁷⁵ This is distinguishable from someone who may be managing the land, such as a local wildlife trust.

⁷⁶ See, Forestry Commission Byelaws 1982, 5(vii) at [http://www.forestry.gov.uk/pdf/FCByelaws1982.pdf/\\$FILE/FCByelaws1982.pdf](http://www.forestry.gov.uk/pdf/FCByelaws1982.pdf/$FILE/FCByelaws1982.pdf) accessed 10 January 2009, 11:00 am.

stewardship role. Foraging, when done following the relevant codes of conduct, does not conflict with this objective.

4.4.4 Conclusions

Making decisions regarding access and then monitoring and enforcing the resulting rules is costly (Ascher 1995), so it is vital that the process is efficient as is possible. In the past, power over access and the taking of wild plants usually resided with the landowner. As foraged foods were almost always economically unimportant, however, this power was rarely exercised and an adaptive, collaborative system governed *common-pool* resource usage evolved. Over time, as land accessible for foraging became increasingly scarce and owners began to test their perceived rights through case and statute law, they in effect raised the costs and limited the potential benefits to gatherers of wild plants. In recent times, as concern for conservation has increased, legislation has begun to extend beyond access to target specific plants for protection. The end result of this evolving system of rights is that the modern forager faces greater potential legal strictures on foraging than ever before. However, in keeping to a historical trend, these strictures may rarely, if ever, be enforced.

The passage of the Countryside and Rights of Way Act 2000 [CROWA] has cemented the general exclusion concerning plants. Schedule 2 (2) restrictions ban foraging and provide for the protection of plants for conservation purposes. Nevertheless, in spite of the fact that foragers become trespassers under CROWA land when picking plant life, it has probably *not* made gathering more difficult for the non-commercial forager. No criminal offences or civil rights against foragers are actually created and

the Act does not override existing voluntary arrangements between the landowner and the forager. Moreover, the taking of wild plants is not a criminal offence on most land, and non-commercial foragers can probably still take plants so long as they obey the applicable Codes and statutory restrictions. There remains no explicit legal right to take the plants, but so long as the foraging is done with the toleration of the landowner, there may be an implied license to do so. In any case, there appears to be a judicial reluctance to impinge upon the complex permissive history surrounding foraging.

In summary, in addition to lawful access and the toleration of the landowner, there are four conditions a forager must meet to be gathering legally. They must ensure that the plants that are being picked:

1. Are truly wild and not a protected species [WCA 1981; Schedule 8]
2. Are not being cultivated in any way (including pruning, etc.) [Common law, the Theft Act 1968, the Criminal Damage Act].
3. Are not intended for resale or commercial use (including jams, wines, relishes, etc.). [The Theft Act, WCA, CROWA].
4. Are not protected under an applicable byelaw.

The statutory foundations of any general right to forage will continue to evolve and adapt. For the dedicated forager, the gathering of plants, where he or she can find them, is still possible. This current accommodation may not hold in the future, however, should either the numbers of foragers increase⁷⁷ or the growing array of quasi-governmental landowners decide to assert their rights under byelaws.

⁷⁷ Numerous books and television programmes have followed Richard Mabey's famous 1972 book *Food for Free*. Important proponents, to name just a few, include: Roger Phillips, Susan Allport, Ray Mears, Fergus Drennan, Miles Irving, Marcus Harrison, Gordon Hillman, Susan Campbell, Hugh Fearnley-Whittingstall, Caroline Conran, Alys Fowler and John Wright.

Where there is no pressing resource supply issue, however, decision-making can and should be left to agreements of interested parties. Though they are not enforceable in law, the collaborative efforts enshrined in codes such as the *Mushroom Picker's Code of Conduct* and *the Code of Conduct for the Conservation and Enjoyment of Wild Plants*⁷⁸, may help to avoid some of the more foreseeable conflicts as well as engage the public in the effective management of natural resources. The Codes influence the behaviour of informed foragers and additional research will need to be done into the effect of these codes if we are to fully understand the impact of the emerging legal environment affecting foraging and its potential future direction. The history of the legal regime surrounding foraging provides sufficient evidence that the law, broadly framed and cautiously enforced, remains the best way forward and this section has argued against the creation of a new, reactionary system of regulation. The next section provides a concrete illustration of an evolved, localized system in operation today that is superior to one dictated by strict legal sanctions or to a 'one-size-fits-all' system structured by policy-makers.

4.5 A CASE STUDY OF AN INHERENTLY PUBLIC PROPERTY REGIME

Through an examination of the historical importance of the bilberry, or *vaccinium myrtillus*, on Bickerton Hill in West Cheshire, this Case Study demonstrates how an uncoded, customary and permissive foraging regime has evolved. It also explores how this system has adapted in the face of an increasingly proscriptive legal environment. What this means for future plant

⁷⁸ <http://www.bms.ac.uk>; Code; <http://www.bsbi.org.uk>

gatherers and their actual *rights of withdrawal* will depend upon interrelated factors such as the degree of local monitoring and enforcement and the nature of the decisions taken at the various judicial levels. It concludes that an adaptive system of informal local rules situated within a broad legal framework is still best for the future governance of common pool plant resources.

4.5.1 The Early Governance Regime

Bickerton Hill sits atop the sandstone ridge that bisects the Cheshire plain.

Near the highest point (212 m) are the remnants of an Iron Age hill fort known as Maiden Castle below which lie fields of bell heather and bilberry. There is little evidence of any significant economic development in the area before the Roman Conquest, but Bickerton appears in the Domesday Book where its name is taken to mean “Bee-keeper’s Farm” (Higham 1993: 136). In subsequent years, it belonged to several large estates and the ownership of the land changed hands repeatedly. Management was often a piecemeal affair involving a varying mix of pheasant rearing, pasturage, mining copper ore, and later, forestry (Carlton 1981). As with unproductive marginal land that was essentially ignored by the Anglo-Saxons, the heath land of Bickerton has been largely left to the herder and forager. Even when it was brought into the purview of a large estate, the nominally private land remained largely unfenced and access was not formally controlled. Local gamekeepers and wardens did act as a barrier to access to a degree, but only to protect the landowner’s interest in pheasants and copper ore. The marginal land containing the berries, fallen wood, water and other produce of the land were taken freely as part of a commons system.

Bilberries or, more colloquially, whinberries, used to grow in profusion upon the lowland heath and have been an important resource for much of the area's history. The villagers have picked the berries every July and August for centuries as a source of supplemental nutrients and income. Knowledge of the time to pick and the location for the best harvests has been passed down from generation to generation and within the local communities. The bilberry foraging sessions were very much a social event. Entire families would journey to the hills with a packed lunch and pales and paste jars for collecting the berries. Mothers might take children out of school to go up on the hill picking for the day⁷⁹. During the 1940s, children would go up before and after school to collect the berries, and much of these would then be sold on to middlemen who took them either to Chester market or to be used in the dye industries in Shropshire and Manchester. This resource formed part of an interconnected economic and social system and an evolved, cooperative management allowed the benefits of access for the purposes of harvesting the bilberries.

In the latter part of the 20th Century many of the areas of heath land reverted to birch wood and the bilberry became increasingly scarce. The National Trust purchased and consolidated the land in the 1990s, and regeneration of the bilberry heath became a priority. The southern side, one of the last sites of lowland heath in Cheshire, was designated a Site of Special Scientific Interest (SSSI)⁸⁰ and is managed by the National Trust and the

⁷⁹ There is no record of this happening at Bickerton, but was a common feature on Dartmoor, Exmoor and parts of Wales as is evidenced in school attendance records.

⁸⁰ See, www.english-nature.org.uk/special/sssi.

Cheshire Biodiversity Action Plan⁸¹ to ensure that the heath land is not overrun by birch trees and bracken. There is now a continual plan involving the rolling removal the birch to foster the regrowth of the bilberry plants.

A *common-pool* resource is one that is costly to exclude individuals from using and where the benefits that accrue through one individual's use naturally subtract from the benefits available to others (Ostrom 1990). The berries are not a conventional common-pool resource as one individual's usage is marginal and does not significantly impact upon subsequent users, especially over time (as the berries regenerate). Rather, the berries have been an "inherently public resource" that was valued more highly by the villagers than by the owners of the land on which they grew. In the past, there was very little supply pressure since the bilberries were not considered sufficiently valuable to the landowners to merit the costs of asserting their *right to exclude*. Access to the land to gather the berries was generally open and unburdened by policed boundaries. The community was fairly isolated, thus limiting the number of individuals able or knowledgeable enough to pick the berries. Whilst gamekeepers naturally kept a close eye on poaching, preventing plant gathering was not part of their remit. Thus, much like the Anglo-Saxon landowners, the focus of the rights in the property was elsewhere, and the custom of berry collecting was un-impinged.

⁸¹ See, Cheshire Region Biodiversity Partnership: Heath land Local Biodiversity Action Plan at www.cheshire-biodiversity.org.uk/habitat-heath_land.htm. Last accessed 30 Jan. 2011 at 11:56 am. The UK Biodiversity Action Plan identifies lowland heath and heather moorland as target habitats to be specifically protected. For a discussion of the issues surrounding the Management of SSSIs and the commons for purposes of nature conservation, see Rodgers (1999).

4.5.2 *The Modern Governance Regime*⁸²

As stated in Schlager and Ostrom (1992), the *right of access* is an essential prerequisite for a *right of withdrawal*, even if it is a distinct activity under the law. Schlager and Ostrom's rights framework (1992) helpfully distinguishes between a property *right of access*, the right to enter an area but not to take anything (as with CROWA), and the *right of withdrawal*, the right to obtain resource units such as bilberries (Schlager and Ostrom 1992). This distinction can be applied here to understand the import of the emerging modern rights regime.

With the National Trust's acquisition of surrounding lands, a limited *right of access* was extended to the world at large, with token control exercised through occasional gates and fencing. *Access control*, according to Ribot and Peluso (2003: 158), is the ability to mediate access and has been notable by its absence at Bickerton. With the arrival of the National Trust, access to the Hill is made easy through large, accommodating parking lots, well-groomed footpaths, and directional signage. Clearly, the intention is – as with CROWA – to provide open access to the Trust lands. However, a *right of access* does not confer a *right of withdrawal* and the Trust has made a clear delineation of these rights.

As explained in 4.5.1, a *right of withdrawal* for bilberries existed, by virtue of an implied license, on Bickerton Hill up until the purchase and consolidation of the land by the National Trust between 1983 and 1992⁸³. However, in a situation analogous to what the forager finds elsewhere under

⁸² Note that Bickerton Hill is not designated access land under CROWA.

⁸³ Parts of the hill were purchased in 1983 with the remainder being bought from Severn Trent water in 1992.

lands opened by CROWA⁸⁴, the concurrent application of Trust byelaws means that gathering bilberries on Bickerton Hill is now technically not permitted (NT Byelaws, Section 2(b)). This is ironic, given the focus on regenerating the bilberry heath.

Nevertheless, the historical permissive regime persists and a *de facto* benefit of picking the berries exists throughout the Trust's property in England and Wales. The Trust has even recently published a book on foraging, encouraging visitors to the Trust's properties to gather and eat wild foods as they walk (Refer to Eastoe 2007). This encouragement to forage, in spite of the potential conflict with its own byelaws, is defensible on several grounds. An implied licence to forage has existed over many of the sites and this does not appear to have been extinguished⁸⁵. Thus, though the statutory regime has undeniably changed over time, the flexible, subtle system of resource usage remains.

History and common sense account for the continuation of this localised, permissive approach. The bilberries, as an "inherently public good," have never been sufficiently valuable for the agents of the various owners to interfere in the practice, even where they had a legal right to do so. However, we cannot neglect the fact that these resources grow on a property that must in turn be managed. Though he eventually modified his position, Hardin initially viewed the open access commons system as a tragedy (Hardin

⁸⁴ Bickerton is not considered access land under CROWA.

⁸⁵ There may also be defences such as laches or estoppel should an authority make a formal legal challenge.

1968; 1994)⁸⁶ where everyone had an incentive to exploit as much as they could of an area's resources. Yet as Thompson (1991: 107) pointed out,

[..] the commoners themselves were not without common sense. Over time and over space the users of the commons have developed a rich variety of institutions and community sanctions, which have effected restraints and stints on use.

Here, as in similar locales, the institutions managing the land and the resources have not evolved in isolation from each other. Throughout most of the Hill's history, the farmers and villagers were an integral part of the maintenance of the land and brought direct benefits to the owners.

According to the current warden, cattle belonging to local farmers used to graze the heath, keeping the birch and heather under control, thus allowing the bilberries to grow from underneath. One long-term resident describes how his family used leggy heather or "*griglegs*" as he called them, to use as besoms and brooms and cut the bracken or "*fearne*" to use for bedding for the animals in winter. Later, it was used as fertilizer, as "*it broke up the manure and it was ideal for spreading on the field after because it broke up, you know, with it being brittle and that.*" This management made for an ideal habitat for the landowner's pheasants and grouse, which like the young shoots of the heather and bilberry. The inhabitants thus had interlocking interests in the preservation and protection of the land.

Whilst this nexus no longer exists, the National Trust declares that it aims to promote "the permanent preservation of lands and tenements of

⁸⁶ Hardin is an economist, not a historian, and discovered later that his theory was not well supported in the historical record. He has since modified his views, though his initial work is still widely cited. See, G Hardin, 'The Tragedy of the Unmanaged Commons' (1994) *Trends in Ecology & Evolution* 9(5) 199.

historical interest or national beauty... for the benefit of the nation”.⁸⁷ The wardens, as agents, now take the role as caretakers and manage the nexus of mutually beneficial relationships between the landowners. In Schlager and Ostrom’s framework, the parties have evolved a system of rights of *access*, *withdrawal and management* that resolve potential common-pool resource dilemmas. The “inherently public” system that pertains is that very type of common property system envisioned by Coase as existing to avoid resource mismanagement when the costs of policing and administering a private property system are prohibitive (Getzler 1996: 660).

The *rights of withdrawal* thus spill over into limited *rights of management* as well. The bilberry heath land has been more valuable as a managed commons than as a private holding, owing to the poor quality of the soil, to the costs of management and policing, but also to the intangible value associated with non-exclusive access. The bilberries do regenerate, and so long as footfall does little damage to the bushes and wildlife, imposing exclusive possession serves no purpose. As noted by Rose (1986), where a resource is plentiful, a natural entitlement makes sense. And as Ostrom’s research reveals, “individualist strangers who submit to norms of mutual forbearance” can efficiently utilize the resources (Getzler 2004; see also Seabright 2004). Only when faced with scarcity should customary controls come into play. The inherently public resources of Bickerton extend beyond bilberries, to all of the resources and amenities that are used by the locals, weekend walkers, bird watchers and naturalists who visit as well as the resident wildlife. The sustainability of these resources is contingent upon

⁸⁷ Statement of Environmental Principles, National Trust Act 1907, found at www.nationaltrust.org.uk accessed 2 January 2009, 7:30 am.

careful understanding and governance of the entire commons, which, in turn, is contingent upon the institutional and social setting within which it operates.

The current warden, as the agent of the National Trust, is the key to the maintenance of this system. He was one of the first wardens to champion regeneration and does not control access to the berries for non-commercial pickers, even though he has the rights enabling him to do so. *Rights of management*, over the land and associated natural resources, is crucial for conservation and has been enabled through various statutory instruments. Through the Habitat and Species Directive, byelaws for the protection of particular species and habitats can now be enacted. A Site of Special Scientific Interest (SSSI) is a conservation area created to help protect the “processes, which help maintain an area”.⁸⁸ The legal framework protects the land from development, damage and neglect and owners of SSSI land must consult Natural England if they want to carry out any activities that may affect the site (s 28 E Wildlife and Countryside Act 1981). Further, CROWA gave Natural England the power to ensure better management and protection of habitats.

Thus, every weekend from the end of July till the middle of September, people can be found picking the berries all along the ridge and beneath Maiden Castle. After years of overgrazing and the encroachment of the birch forest, the regeneration of the bilberry is well underway. The warden is keenly aware that visitors and the local community are partners and stakeholders in this regeneration, and that the aims of multiple users are not always in perfect harmony. The nexus of social relationships atop the Hill are important for the

⁸⁸ www.english-nature.org.uk/special/sssi accessed January 2, 2009, 8:00 am.

successful regeneration of the heath land and are in keeping with the historical resource management as well as the current requirements for the management of SSSIs. According to English Nature, management of SSSIs may involve precisely the kinds of things that have been done for centuries atop the Hill: grazing animals at particular times of the year, coppicing, controlling the water levels and clearing scrub. The farmers whose cattle graze, the volunteers who fix the fences, clear the birch and scrub and help maintain the footpaths, as well as the regular and occasional visitors, all play a part in its management.

Anyone can now come mid-July through to early August, stop during his or her walk and gather bilberries for a snack. A *right of withdrawal*, via an implied licence, persists for those picking on the Hill; even where it would appear that under the National Trust's own byelaws, picking the berries is not permissible. The Trust and the local warden hold the *rights of exclusion* yet do not interfere in the takings. This situation harkens back to the early management of the commons in that the operation of the rules and the provision of rights and benefits arises through an adaptive process between the local landowners and those other interested parties.

4.6 THE FUTURE OF THE FORAGED COMMONS

Chapter Four posed the research question: How has the socio-legal regime surrounding foraging for plants changed through history and what affect has this had on the vitality of foraging? The general answer is that the legal regime surrounding foraging is a function of the prevailing social and economic climate and has progressively become proscriptive. Yet, in line with Ostrom's thesis of long-enduring common pool resources, the actual

governance of wild food resources still mostly occurs through local, collaborative institutions.

Many commons usage problems regarding foraging have waned as people have lost a connection with the land along with the knowledge of useful plants. However, with the increasing interest in foraging, these inherently public resources may need protection from overutilization. Whilst the number of berry pickers is relatively small and none are obviously out for commercial gain (by picking on an industrial scale), the Bickerton National Trust warden does not even contemplate enforcing a prohibition. Moreover, the berries are plentiful, and though the care and management of them incurs some financial and social costs, the existing systems form a part of a successful approach to environmental and ecosystem protection. But what if the situation changes? As noted in Chapter Three, Marginal Value Theory (MVT) predicts that where productivity of a foraging patch is declining⁸⁹, the forager will increase the time they are resident in that patch. This is a precursor to a common's tragedy. The issue then becomes, should less flexible and more specific formal legal sanctions be instituted to protect the complex ecological environment of which the bilberries are only a part?

The increasing interest in foraged food may be leading to an increase in 'purposeful' foraging,⁹⁰ and this growing exploitation of valuable plants may cause conflicts with the other users of freely accessible lands. Writer, broadcaster and forager, Fergus Drennan – known as “The Roadkill Chef” -

⁸⁹ E.g., poor weather conditions meant that the berry cover was exceptionally poor in the summer of 2011.

⁹⁰ As noted in the introduction, numerous books and television programmes have followed Richard Mabey's famous 1972 book *Food for Free*. See n-gram data, below in Chapter 4, 5 and 6. Important proponents, to name just a few, include: Roger Phillips, Susan Allport, Ray Mears, Fergus Drennan, Miles Irving, Marcus Harrison, Gordon Hillman, Susan Campbell, Pamela Michael, Jane Eastoe, Hugh Fearnley-Whittingstall, Caroline Conran, Alys Fowler and John Wright.

has abandoned commercial foraging due to growing issues of sustainability (Scott 2008). The warden of Bickerton Hill may not be so accommodating in future should those gathering bilberries begin to put such pressure on the plant that the local wildlife that depend upon it begin to suffer. Many animals and insects depend upon the bilberries: birds (including grouse and pheasants); green hairstreak butterfly; the bilberry bumblebee. Many other animals eat the berries: foxes, polecats, badgers, dogs and the local Welsh black cattle.

Coase illustrated that the optimizing bargains that would be struck in the absence of transactions costs cannot exist where the “commoners” are not readily identifiable. Foragers, be they bilberry gatherers upon Bickerton Hill or mushroom pickers in the forest⁹¹, are too disparate for the landowners or their agents to identify, let alone monitor or police to any degree. Moreover, as Rodgers (1999) points out, the voluntary commons associations that do exist have no power to bind dissenting minorities and, even where there is power and authority to act, there are often strongly competing interests and values involved. So are the foraging commons doomed to tragedy in the new fad for gathering wild foods? Almost certainly not: there is little evidence, either historical or contemporary of the over-exploitation of annually renewable, inherently public goods. On the contrary, there is substantial evidence that the users of such goods will develop ad hoc, internal social and quasi-legal controls to manage these resources (Ellickson 1993: 1390).

⁹¹ Mushroom picking is increasingly becoming an issue owing to the high value of some mushroom harvest. There has also been a sharp increase in foraging for private use, owing perhaps to an influx of migrants from Eastern Europe where mushroom foraging is a common practice. Contrary to popular belief, mushrooms - as with berries - generally regenerate over time.

As Ostrom (1998:1) explains:

Without individuals viewing rules as appropriate... no police force and court system on earth can monitor and enforce all the needed rules on its own.⁹²

Moreover, Seabright (1993: 125) contends that any attempt to enforce byelaws may lead to a “breakdown of the cooperative mechanisms that may have evolved among those who shared implicit, non-contractual rights in the common property resource beforehand.” The situation on Bickerton Hill – like many foraging locations – is bound up with the social norms involved. Some of these are local, whilst others are not. What we have is a distinctly different legal paradigm; increasingly, it resides not in public trust, nor ancient custom, but rather in a modern social contract for an “inherently public property” in wild food.

In this regime – which departs markedly from the standard neoclassical approach - a principle is established that the public has a right to pick the bilberries (or other foraged plant), but that the scope, refinement and enforcement of this right is left to a local, collaborative arrangement. In this context, decision-making can and should be left to the interested parties, even where this is not straightforward. For instance, as noted by Rodgers (1999), creating a scheme for managing a commons involves ensuring the participation of all commoners with registered rights and the recognition that there are many different types of competing land use. Thus, for example, it is easy to foresee a conflict emerging on the heath land between individuals with long-established grazing rights and increasing numbers of foragers, both of whom may value the bilberry bushes and their produce. Nevertheless, a

⁹² See further discussion in E Ostrom, J Burger et al. ‘Revisiting the Commons: Local Lessons, Global Challenges’ (1999) 284 Science 178.

collaborative system can adapt as the needs of those involved change. Where the land is not fragile, nor the plants protected, foraging does not diminish the value of the underlying property or substantially increase the landowners' burden of maintaining boundaries. Therefore, foraging for plants should, as a general rule, be left unfettered by laws whilst localized systems to address over-exploitation and conservation should be allowed to evolve.

Just as with the medieval commons, customary usage can be limited or restricted (Dahlman 1980: 101). The Bickerton warden has power and authority; the boundaries of the property are legally defined with the rights vesting in the National Trust. He can limit access to car parks, define who can pick the bilberries (even attempting to limit access to National Trust members), thereby excluding commercial foragers and those who are deemed to be over-picking. As noted in the discussion on behavioural constraints (3.3.3), the warden could put strictures on the volume of berries taken; for instance, by defining the volume of containers allowed or setting time limits for gathering. If choosing the latter, he can also prohibit the use of scoops (currently permitted), which allow for a much higher volume of harvesting (See, Tables 3.3, 3.4; Figure 6.2; Photo 6.8).

Foragers also have an indirect outlet for engaging in negotiations through, for instance, annual subscriptions to organisations such as the National Trust, the Woodland Trust, the Royal Society for the Protection of Birds or the Botanical Society of the British Isles. These organisations provide a low-cost forum for the airing of disputes. Numerous published Codes of Conduct also help to guide and inform foraging behaviours. Though they are not enforceable in law, the collaborative efforts enshrined in codes

such as the Mushroom Picker's Code of Conduct and the Code of Conduct for the Conservation and Enjoyment of Wild Plants⁹³, may eliminate some of the more foreseeable conflicts as well as engage the public in the effective management of natural resources. The Codes influence the behaviour of informed foragers and additional research will need to be done into the effect of these codes if we are to fully understand the impact of the emerging legal environment affecting foraging and its potential future direction.

If necessary, local systems can be reinforced with stronger powers. Commons Associations could be reformed with a rationalization of rights coupled and delegated authority to govern independently (Rodgers 1991: 252; Singleton and Taylor 1992; Dagan and Heller 2001). For instance, in return for a greater emphasis on nature conservation and an acknowledgement of the rights and privileges of inherent public property of the commons, the Associations could be given power in the form of a "statutory legal personality" thereby enabling them to enter into legal arrangements and to coordinate policing and monitoring (Rodgers 1992: 22).

Regardless, a stark legal framework is unenforceable. Though landowners, local authorities, and the Trusts possess almost feudalistic rights of exclusion in legislation and via byelaws, none have either the financial or physical wherewithal to fully protect an inherently public resource from over-exploitation. Nor has the judiciary shown any inclination to side with a big landowner against a non-commercial forager who values access to the wild food sources. Instead, the best hope for successful future governance lies with the continuation of local, collaborative and adaptive systems. The law

⁹³ <http://www.bms.ac.uk>; Code; <http://www.bsbi.org.uk>. See also www.jncc.gov.uk.

should continue to provide the legal parameters giving rights to protect and exclude. But beyond this should be a continuously negotiated system of usage based upon local needs and enforced by local management.

CHAPTER FIVE: A SURVEY OF THE MODERN FORAGING ENVIRONMENT⁹⁴

“The Neolithic Revolution, through which we humans are still living, has been a process of forgetting.”

- A Dalby, Ginseng: Taming the Wild, 2006, p. 103.

5.1 INTRODUCTION

Human foraging behaviour has changed through time such that it is now of marginal biological importance and yet it nevertheless remains a valued activity that is at least tacitly respected in law⁹⁵. This chapter evaluates the actual practices of modern foraging in asking: who are the people who gather wild foods today? What are they like? What do they gather and why? A wide-ranging Survey was thus conducted:

- a. To profile the individuals who are foraging in modern England
- b. To obtain an overview of the wild plant foods that are currently being picked
- c. To assess individual knowledge of the legal environment in which foraging takes place
- d. To begin to assess why individuals continue to seek out plant life from the countryside

The findings of a preliminary investigation showed that, during the Eden Project’s “Wild Foods Weekend” in 2009, roughly half of the visitors stated that they foraged for wild foods. Of those, only 21% foraged for anything other than the ubiquitous blackberries and sloes. The focus of the larger, subsequent Survey was on that minority of individuals whose interest in foraging extended beyond those two wild foods.

The Survey results indicate that the modern forager is likely to be female, aged between 30 and 59, very well educated and somewhat more

⁹⁴ A summary of this survey has appeared in Plant Talk (2010), available at: <http://www.plant-talk.org/uk-where-hunter-gatherers-gone.htm>.

⁹⁵ The survey does not explore hunting nor does it cover any foods, plant or otherwise, that are foraged from the seashore. Wild animals fall under several different legal regimes, have very different access implications and touch on numerous complicating philosophical issues. These are beyond the scope of this research, but will be a fascinating area for future study. Foraging for the produce of the coast has unique implications in law and in practice it proved to be somewhat difficult in practice to separate coastal plant life from animal life. There is an excellent study on just this area available by John Wright (2009), *Edible Seashore*.

likely to be living rurally than in or near the city. Women outnumber men by roughly three to one. Of those out gathering plants, 32% are likely to possess a University education (as opposed to 8% of the general population) and 25% of those a Post-graduate degree (compared with 3% of the population). These results complement the general findings of a questionnaire survey of Scottish foragers completed in 2003 (Emery, Martin and Dyke as reported in Dyke 2004:48-49), which found that:

One profile that emerged from the omnibus survey results for the past five years, is of a middle aged, middle class woman, working at home, who harvests blackberries to make jam each year, or picks holly and ivy to decorate their house at Christmas.

Section 5.4 identifies the most popularly gathered wild foods, which include: blackberries, elderberries, field mushrooms, sweet chestnuts, elderberries, sloes, hazelnuts, puffballs, nettles, ramsons, wild strawberries and mints. Analysis of the data indicates that foragers may tend to specialize in the category of the food that they gather and that the range of foods is narrowing. In terms of the laws governing foraging, the analysis in Section 5.5 reveals that most foragers appear to be either unaware of the legal issues surrounding access to land, or are unconcerned. Most gatherers consider that their activities are permitted, so long as they are acting responsibly. As indicated in the written comments to the questions, whilst there seems to be a pervasive ignorance or indifference to the law, there is generally an adherence to certain cultural rules or norms.

The final component of the Survey addresses why some people are still out foraging for wild foods. The results, discussed in 5.6, indicate that the benefits from obtaining wild foods and the act of gathering are often one and

the same. Thus, the physical and psychological benefits encompass exercise, relaxation, nutrition and a spiritual feeling of connection to the land. There is, however, a socio-cultural dimension to the process of foraging that appears to be of equal importance to some. Foraging is viewed as a social activity as well as a quasi-political or philosophical one, which supports ideals such as free food, self-sufficiency and a sense of community. Surprisingly, the ideal of inter-generational transfer of knowledge and tradition was less in evidence than expected, given the large numbers of respondents indicating that they had learned much of what they knew about what to gather from their parents or grandparents.

5.2 METHODOLOGY

In late June 2007, a set of pre-pilot interviews led to the decision to conduct a postal pilot survey, and ultimately an electronic survey, in order to collect quantitative data on the practice of plant gathering in England. The aim of the survey was to provide an indication of the scope and nature of the foraging that might be occurring, as well as to profile those engaged in the activity. Individuals targeted for responses were those who foraged for more than simply blackberries, given that this practice is fairly ubiquitous.

5.2.1 The Baseline Survey

Further research was conducted to gain a quantitative indication of the difference between those who seek out common foods, such as blackberries, and those who forage more widely. From October 4th through the 5th, 2008, the Eden Project in Cornwall held a “*Wild Foods Weekend*”. During this event, visitors were surveyed to gain an idea of what proportion actually foraged for plant life. Given that the Project’s aims are to encourage a broader understanding of plants and their uses, and that the event focused on

wild foods, the population of visitors was possibly more likely to forage than the general population, and therefore likely to provide a richer data set to explore in depth.

Visitors were first asked whether they foraged and their responses (yes or no) were tabulated. Where they indicated that they foraged for more than blackberries or sloes, they were given a questionnaire⁹⁶. The results indicated that between 48% and 57% of those visiting the Eden Project during the “Wild Foods Weekend” picked some form of plant life (Table 5.1). However, only 21% of those actually qualified for the questionnaire by picking more than blackberries or sloes.

Table 5.1: “Wild Foods Weekend” Visitor Survey responses

Number of Visitors	Number of Visitors Sampled	Visitors indicating that they foraged	Visitors who stated that they foraged for more than blackberries or sloes
3642*	374	200 [53%]	79 [21%]

*According to the Eden Project records

These figures do not tell us what proportion of the general population is foraging. Yet even though we can draw no firm statistical conclusions, it is likely that a high proportion of this particular population (Eden Project visitors over the “Wild Foods Weekend”) would be foraging relative to the general population. If true, one would expect these values to be on the high side relative to the general population. The results also highlight the substantial differences between those stating that they forage, and those that actually engage in searching for a variety of wild foods.

⁹⁶ The individuals were given a pack including a questionnaire, a stamped addressed envelope and details about the research project and investigators.

5.2.2 *The Survey Questionnaires*⁹⁷

In addition to gathering basic data about the respondents from which to derive a profile, the questionnaires explored the types of plants that are currently being gathered and the uses to which they are being put. Each respondent's understanding of the legal environment surrounding foraging was also tested⁹⁸. Further questions were added to provide a comparison with some of the data obtained via *Wild Harvests from Scottish Woodlands* (Emery et al 2008). Finally, for each question, a written response was encouraged as a way of elaborating on, for example, a specific answer or for adding a foraged plant or fruit that was not listed.

The Pilot Postal Questionnaire (see appendix) was distributed in several ways: through a 'snowball technique' (Atkinson and Flint 2001),⁹⁹ during the Baseline Survey at the Eden Project or via organizations such as the Women's Institute and the National Trust, who graciously distributed the packets to members. Forty-eight individuals responded, using the self-addressed stamped envelopes provided. Two additional sets of questionnaires were distributed electronically through the Eden Project, using the Survey facility *Survey Monkey*¹⁰⁰. One set targeted the Eden Project's Staff whilst the other its Trust members or "Friends". Twenty-four valid

⁹⁷ All responses were voluntary and no inducements were given for completion of the questionnaires. Strict confidentiality was maintained in all cases. For the postal survey the author was aware of the identity of some of the recipients of the questionnaire, but the self-addressed stamped envelope ensured that the responses were voluntary and anonymous. Several of the respondents chose to answer via email. Printing off and filing the response without any tags or identifiers maintained anonymity in the analysis.

⁹⁸ Thus, questions were asked on gender, age, residence, educational attainment and knowledge of specific laws governing access and the gathering of plants. Each respondent was asked whether they gathered specific nuts, weeds, herbs, fruits and fungi over the past five years. In an open question, the respondents were also asked to list the benefits that they obtained from foraging.

⁹⁹ Through self-selection, distribution via acquaintances and by finding people foraging, usually whilst picking blackberries or gathering sweet chestnuts in Delamere Forest, Cheshire or bilberries in Moel Famau, Wales, Bickerton, or on Dartmoor in Devon.

¹⁰⁰ www.surveymonkey.com

questionnaires were returned from the Staff and 29 from the Friends (See Table 5.2 below)¹⁰¹.

The sets of questionnaires provided a significant amount of useful and interesting data. As discussed above, the samples obtained contained a broad spectrum of individuals who *might be likely* to forage for plant life. However, none of the separate data sets was particularly large. So, in order to produce as robust a sample as possible, the data from the Postal Survey and the survey of the Eden Project’s staff and members were combined. Thus, the 48 respondents from the Postal Pilot and the 69 total respondents from the Survey Monkey Survey were combined into one spreadsheet¹⁰². This gave a large enough sample to use confirmatory statistics.

Table 5.2: The Components of the Combined Data Set

	Postal Pilot	Eden Project Staff	Eden Project Friends	Total Respondents ¹⁰³
Dates of distribution	4/7/07 – 31/3/09	17/10/08- 31/3/09	17/10/08- 31/3/09	
Number of Responses	48	31	38	117
Number of Valid Responses	48	24	29	101

Combining the data also allowed, where relevant, for hypothesis testing and thus the data flags a potential relationship between variables such as age, education, knowledge and the variety of plants selected. For this analysis, a variable (x) was plotted against dependent variable (y). A correlation coefficient above .4 was considered to be significant at a

¹⁰¹ There were 16 invalid responses (9 from the Eden Friends and 7 from the Eden Staff). The responses were deemed invalid if the responses only included basic personal data and nothing else.

¹⁰² There are issues as to the compatibility of the Postal Pilot and the Survey Monkey Questionnaires, and these issues are detailed in the discussion where relevant.

¹⁰³ There were 16 invalid responses (9 from the Eden Friends and 7 from the Eden Staff). This made for 117 total responses, but only 101 responses included information beyond basic personal data and thus is the number used throughout most of the analysis.

confidence interval of + or – 95%¹⁰⁴. There are, of course, many provisos with the use of statistics. As stated by Blastland and Dilnot (2008), “statistics is an exercise in coping with, and trying to make sense of uncertainty, not in producing certainty.” Biases in the combined survey sample may exist and where this potential is evident, it is highlighted in the analysis.

5.3 A PROFILE OF THE MODERN FORAGER

From the combined data, a picture of who is out gathering wild foods in England emerges. In short, they are likely to be female, aged between 30 and 59, very well educated and somewhat more likely to live in rural areas than in or near the city. Table 5.3 shows the remarkably consistent ratio of female to male foragers across the three components of the Survey; roughly three females are out gathering for every male.

Table 5.3: Gender [N=101]

	Combined	Postal Pilot	Eden Staff	Eden Friends
Male	26%	23%	21%	34.5%
Female	74%	77%	79%	65.5%

The combined data show a good distribution of ages. The population of England in the 2001 Census was just over 49 million people¹⁰⁵. Of this number, around 44% were between the ages of 30 and 59. From Table 5.4, it is apparent that the Combined Survey compares fairly favourably, with around 58% of the sample being in a similar age range.

Table 5.4: Age Distribution in Comparison with Census Data [N=101]

Age	2001 Census *	Combined Survey
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¹⁰⁴ Where the plots involve data based upon means or averages.

¹⁰⁵ <http://www.statistics.gov.uk/census2001/pop2001>, accessed 30 Nov. 2009, 1:30 pm.

20-29	13%	11%
30-59	44%	58%
60+	22%	18%

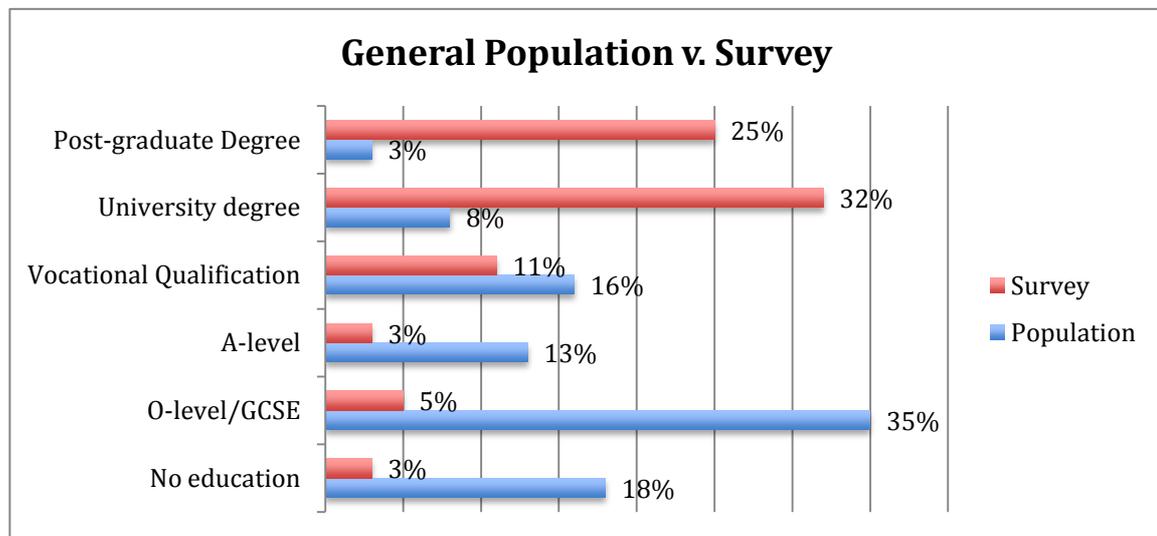
*Source: <http://www.statistics.gov.uk/census2001/pop2001>.

The majority of Eden Staff respondents are aged in the 30s and 40s, which is narrowly representative of the general population as a whole wherein the average age is 40 for women and 38 for men (Census 2001). The Staff Survey, owing to the mandatory retirement age, perforce will not include individuals over this age, though this is somewhat offset by the Friend's component, which has a much broader distribution of ages. Given the relatively high representation amongst this age group in the corresponding Postal Survey (27% over 60), their representation in the Eden component may be on the low side, but it is not inconsistent with the census data (where 22% of the population is over 60). In sum, for age, the overall results from the combined sample are a reasonable fit with the general population as a whole.

A large percentage of the sample has a University degree, and a significant number a Postgraduate degree. In total, 57% of the Survey respondents had attained a University degree or higher. This compares with just 11% in the U.K. population as a whole (Census 2001). Figure 5.1 illustrates the breakdown of educational attainment from the Combined Survey. The sample has a high proportion of those obtaining a higher degree level, and there are several potential factors. First, the postal survey used a 'snowball' technique and thus, in spite of efforts to select a representative sample, it may be biased towards those with similar socio-economic and educational backgrounds. Second, many of respondents from the Eden Project staff sample, owing to the nature of the work that they do, are highly

educated. Thus, almost 90% of respondents from the Eden Survey had attained a University degree or a Postgraduate degree. However – and surprisingly – a higher proportion of individuals declare Postgraduate degrees amongst the Friends component of the Eden Survey, with 48% of respondents possessing a Postgraduate degree as opposed to 20% of those from the Staff Survey¹⁰⁶.

Figure 5.1: Educational Attainment [N=98]



As demonstrated by the geographical distribution map below, the respondents come from a variety of areas, though owing to using Cheshire and Cornwall/Devon as bases for this research, there is an inevitable bias towards these two locations. The data was gathered primarily in England, and so Scottish and Welsh respondents were only incidentally included. Overall, those answering the questions are proportionately rural (60%) and yet those describing themselves as urban dwelling still make up about 40%, and this was fairly consistent across the three sets of questionnaires.

¹⁰⁶ *Note bene* that this is of those who answered the question and is not representative of the entire sample.

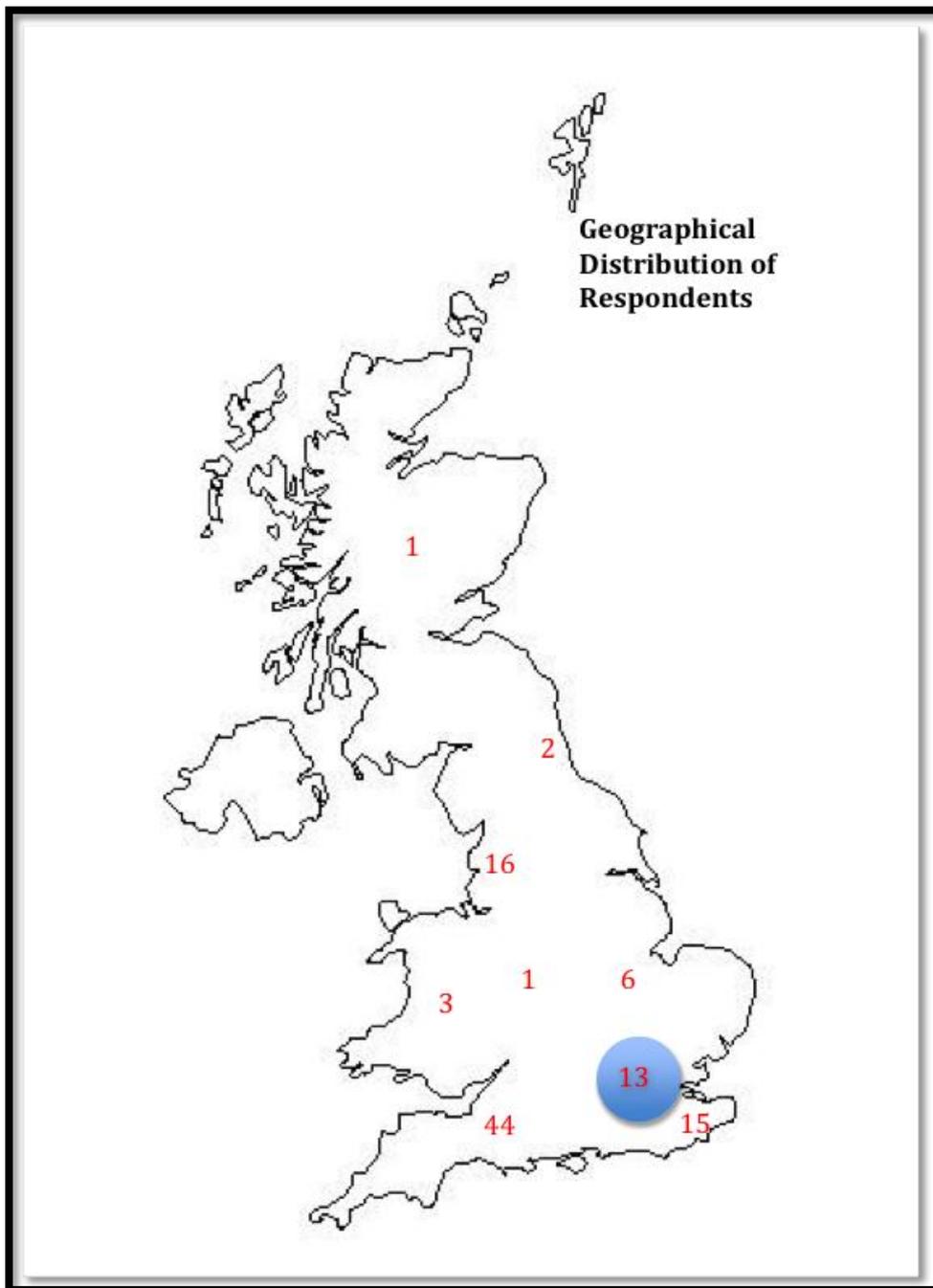


Figure 5.2

The results of the Survey compare favourably with the *Wild Harvest Report* (2006) conducted by consultants for the Scottish Executive in 2003 (Emery et al. 2006). Emery, Martin and Dyke found that women were slightly more likely than men to have gathered, as were those from AB socio-economic groups as opposed to DE (as reported in Dyke 2004:48-49).

5.4 WILD PLANT FOODS THAT ARE CURRENTLY BEING FORAGED

As mentioned in Chapter Four, the Anglo-Saxon cooks used wild foods including pignuts, wild herbs, nettles, seaweeds, fungi, hawthorn flower buds, dandelion, rocket, wood sorrel and a wide variety of fruits and nuts (Hagen 1995). Each of these foods is still gathered by modern foragers today, though to a much less extent than was common even in the recent past.

5.4.1 Varieties of Wild Foods Currently Gathered

Individuals in the Survey picked a variety of foodstuffs, as noted in Tables 5.5 and 5.6. The most popular foods are familiar: blackberries, elderflowers, field mushrooms, sweet chestnuts, elderberries, sloes, hazelnuts, puffballs, nettles, ramsons, wild strawberries and mints. There are many uses for these plants, not all of them for consumption. For instance, nettles, in addition to making good beer and soup, are very often used to enrich compost. Nevertheless, each of these wild foods is widely used. Blackberries are a staple for jams and pies; elderflowers, elderberries and sloes for cordials, champagne and alcoholic beverages. Ramsons are a garlicky accompaniment to game dishes such as venison, wild boar and pheasant. Field mushrooms and puffballs are sautéed in butter as a side dish or for stirring into pasta and omelettes. There are numerous cookbooks available today demonstrating how to utilize the foods gathered from the field and hedge (e.g. Grieve and Miers 2007; Michael 2007).

Table 5.5: Variety of Foraged Wild Foods

Foraged Food in Order of Popularity	Total number of respondents who have picked
NUTS	
Sweet Chestnuts	44
Hazelnuts	28
Horse Chestnuts *(not edible)	21
Cobnuts	16
Beechnuts	16
Acorns	15
Walnuts	9
Pignuts	2
WEEDS/SALAD PLANTS	
Stinging Nettles	24
Ramsons	24
Dandelion	21
Common Watercress	16
Rocket	15
Marsh Samphire	14
Hawthorne	11
Garlic Mustard	9
Lamb's Lettuce	9
Wood Sorrell	9
Garlic Mustard	8
Horseradish	6
Alexanders	4
Good King Henry	3
Common Sorrell	3
Burdock	2
Fat Hen	2
Rock Samphire	1
Red Clover	1
Plantain	1
HERBS	
Elderflower	46
Mints	23
Wild Thyme	16
Fennel	9
Primrose	9
Chamomile	5
Sweet Cicely	4
Sweet Violet	4
Meadowsweet	4
Wild Marjoram	2
Red Valerian	2
Comfrey	1
Lemon Verbena	1

Variety of Foraged Wild Foods (cont.)

FUNGI	
Field Mushrooms	45
Puffballs	25
Chanterelles	17
Shaggy Inkcaps	16
Horse Mushrooms	15
Chicken of the Woods	12
Parasol Mushroom	11
Ceps	11
Oyster Mushrooms	10
St. George's Mushroom	9
Wood Blewits	6
Morels	6
Hedgehog Fungus	5
Summer Truffles	2
Beefsteak Mushroom	1
FRUIT	
Blackberries	52
Elderberries	34
Sloes	32
Wild Strawberries	24
Damsons	20
Crab Apples	20
Wild Raspberries	19
Rose Hips	18
Bilberries	13
Bullace	8
Wild Cherry	7
Rowan Berries	6
Dewberries/Cloudberries	3
Loganberries	2
Juniper Berries	2
Gooseberries	1
Kea Plums	1

Table 5.6: Most Popular Foraged Items in the Combined Survey (all photos by the author)

Rank	Wild Food
1	<p>Blackberries</p>  A photograph showing several clusters of blackberries on a green stem with serrated leaves. One cluster is unripe and yellowish-green, while the others are ripe and dark purple-black.
2	<p>Elderflowers</p>  A photograph of a large, dense cluster of small, white, five-petaled flowers (elderflowers) on a green stem, resting on a wooden surface.
3	<p>Field Mushroom</p>  A photograph of a single, white, button-shaped mushroom with a brown stem, growing in a patch of green grass and dry straw.

4

Sweet Chestnut



5

Elderberries



6

Sloes



7	<p>Hazelnuts</p> 
8	<p>Puffballs</p> 
9 – tie	<p>Nettles</p>  <p>Ramsons</p> 

	<p>Wild Strawberries</p> 
10	<p>Mints</p> 

The *Wild Harvest Report*, conducted by the Scottish Forestry Commission, found that somewhere around 200 items were being gathered in Scotland (Emery et al. 2006). The list derived from the questionnaires in this Survey is nowhere near as extensive, with around 73 items being reported. The difference is partly due to the categorization used in the questions, but also because many foods – such as those from the seashore and those used pre-dominantly in handicrafts– were not included.

Table 5.7: Most Popular Foraged Items compared with the *Scottish Wild Harvest Report*:

Vascular Plant	Combined Survey Rank	Scottish "Wild Harvest Report" Rank	Fungi	Combined Survey Rank	Scottish "Wild Harvest Report" Rank
Blackberry	1	1	Chanterelle	3	1
Raspberry	14	2	Boletes	Not mentioned	2
Bilberry	26	3	Field Mushroom	1	3
Elderberry	5	4	Horse Mushroom	5	4
Elder Flowers	2	5	Hedgehog fungus	13	5
Sloe	6	6	Puffball	2	6
Rowan berries	39	7	Giant Puffball	2	7
Rosehip	15	8	Parasol	7	8
Nettles	9	9	Inkcap	4	9
Hazelnuts	7	10	Wood blewit	11	10

In spite of the differing scope and methods utilized by the two Surveys, the contrasts are nevertheless interesting. There are ecological differences between England and Scotland, and some species are more prolific depending upon location. For instance, there is no mention of boletes in the Combined Survey rankings, but they are the second most popular foraged fungi in the *Wild Harvest Report*. Scotland is more forested than England and the boletes have a symbiotic relationship with trees, therefore they quite probably grow in greater abundance in more forested Scotland. There is also a more commercial interest for those surveyed in *Wild Harvest Report*, and thus the issue of sustainability is important¹⁰⁷.

5.4.2 Relationships between the Varieties of Wild Foods Gathered

Analysis of the data reveals some interesting relationships between the varieties of wild foods that were gathered by the respondents. It appears that foragers are likely to specialize somewhat in the category of wild foods that they gather. When the number of types of a particular wild food picked in the past five years (x) is plotted against the number of different plant types picked

¹⁰⁷ The combined survey did not ask whether the forager engaged in commercial activity.

(y), using initial data,¹⁰⁸ each of the combinations gave a positive slope. However, the correlations throw up some interesting potential issues concerning the relationship between overall knowledge of plant life and foraging habits. It may be that some foragers are purposeful and focus on specific foodstuffs, ignoring – or ignorant of – often equally harvestable foods.

Thus, individuals out gathering weeds are also likely to pursue herbs and vice versa ($r^2 = .545$). Since they are very similar plant types, this is not necessarily surprising, and there may not be a clear distinction between the two categories. There is also a moderate correlation between both weeds and nuts and herbs and nuts. On the other hand, there is a correspondingly weak correlation for both with the other categories: fruit and especially fungi.

Weeds/Salad Plants (x)

Number of varieties (y)	y= mx +c	(r-squared)
Nuts	.4117x+.6366	.455
Herbs	.4778x+.3299	.595
Fungi	.3853x+1.0365	.143
Fruit	.5791x+1.3349	.315

Herbs (x)

Number of varieties (y)	y= mx +c	(r-squared)
Nuts	.6443x+.5907	.417
Herbs	1.2616x+.2099	.595
Fungi	.5583x+1.0408	.112
Fruit	.9859x+1.1859	.341

Those picking fruit tend to stick to fruit whilst on their forays. Fruit picking rates as the overall most popular activity of foragers. Yet it seems to be weakly correlated with all of the other categories at more or less the same level, indicating that fruit pickers may not tend to pick a variety of other wild foods. Perhaps this is because the forager is purposefully searching – for a

¹⁰⁸ This regression is done using individual data points, not means as elsewhere in the survey hence the absence of confidence intervals.

fruit to make wine, or jam or a pie – and is thus not receptive to other wild foods? Or it could be that the forager does not know other foods? Or that she is not able to harvest, handle and transport anything bar the target fruit? Given that so many people pick fruit, especially blackberries, and fruits are easily identifiable; this may require a low level of knowledge. Thus, lack of knowledge concerning other plant-life may account for this relationship, but this needs further confirmation.

Fruit (x)

Number of varieties (y)	y=mx+c	(r-squared)
Herbs	.9935x+1.0419	.341
Weeds	.5791x+1.3349	.315
Fungi	.9859x+1.1859	.323
Nuts	.5757x+1.2909	.305

Nuts, especially sweet chestnuts and hazelnuts, are also very popular with modern foragers. Nothing else seems to hold the same attraction as only herbs and weeds are correlated, and at a weak-to-moderate level. Thus, many nut pickers tend to focus their efforts on nuts, even though many fruits, such as sloes, are harvestable at roughly the same time.

Nuts (x)

Number of varieties (y)	y=mx+c	(r-squared)
Herbs	.6472x+.2356	.417
Weeds	1.1058x+.1387	.455
Fruit	.9935x+1.0419	.221
Fungi	.785x+.6328	.305

There is only a very weak correlation between the number of types of fungi and other foods. Safe foraging for fungi requires a high level of knowledge and experience but this does not go far to explaining why those searching for mushrooms do not appear to regularly avail themselves of other wild foods.

There are a greater percentage of men (27%) gathering mushrooms than women (19%) and mushrooming came a close second in popularity to fruit picking for the men, but a distant third for women. These differential preferences are an interesting area for follow up research.

Fungi (x)

Number of varieties (y)	y=mx+c	(r-squared)
Herbs	.2815x+.8139	.112
Weeds	.3711x+.9411	.143
Fruit	.2011x+.7315	.323
Nuts	.5757x+1.2909	.221

In conclusion, the data indicates that individuals may have fairly strong foraging preferences or specialties. This may be due to many factors, such as proximity to particular wild foods or seasonal variations. However, seasonality cannot explain why nut pickers are rarely avid fruit gatherers, as, for instance, autumn fruits and nuts are often found contiguously. Knowledge and experience may also play a role and this may be connected to the complex mix of benefits that individuals derive from foraging.

5.5 INDIVIDUAL KNOWLEDGE OF THE LEGAL ENVIRONMENT

As explored in Chapter Four, the relationship between those foraging on the land and the surrounding legal environment is a lens through which we can understand more about modern British society. The Survey targeted the forager's relationship with the owners of the land where they gather, and the scope and extent of legal knowledge related to the process. It also attempts to gauge the impact of the level of knowledge on the variety of wild foods picked. A large proportion of the respondents (49%) discovered where to pick through "*local knowledge*" or "*knowing the area very well.*" As noted in the *Wild Harvest Report* (2006), walking and collecting are very closely related

and, from the various comments appended to the responses, it appears that many people saw the particular wild foods (or plants producing them) whilst on walks and made a mental note as to the location¹⁰⁹. Thus, out of all of the comments, over half at some point mentioned walking (e.g. “walks in countryside”) specifically. At first this seems self-evident, as walking is part of the process of foraging, even if it only involves a short trip from the car to the plant. Nevertheless, it is likely to be more than this: the individuals who forage are probably those who also value certain benefits of the countryside. Regardless, these responses raise issues concerning the foragers’ understanding of the legal environment. Accordingly, this section explores the nature and the extent of the individual forager’s knowledge of the law surrounding the taking of plant life.

5.5.1 General Knowledge of the Laws Affecting Foraging

From the survey results, it appears that most foragers are either unaware of the issues surrounding access to land for the purposes of foraging, or are unconcerned. Only 40% consistently knew who owned the property where they pick. This indicates that the respondents either did not know – or did not care – whether they had lawful access, much less whether they were permitted to forage whilst there. As explained in detail in Chapter Four, even where the respondents have lawful access, this does not in itself convey a right to forage.

¹⁰⁹ The three components of the Survey do a poor job of differentiating between the categories of “local knowledge”, “opportunistic” and “learned via others.” It is possible for individuals to have selected all three responses, or to be confused as to which category was most applicable, and this may be reflected in the high number on non-responses (24%).

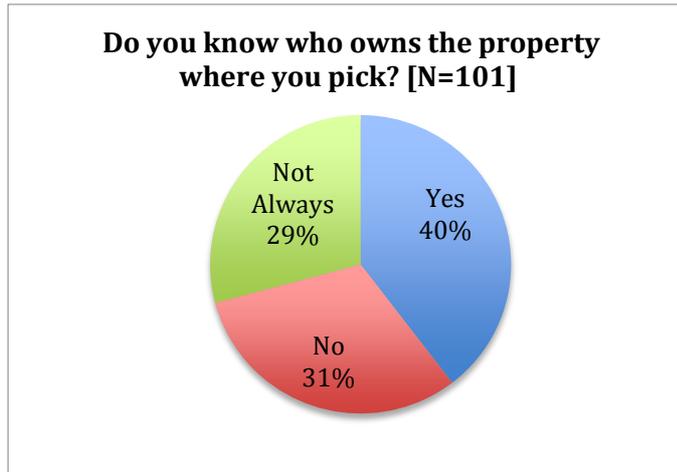


Figure 5.3

Yet only 27% of those responding to the question declared that they had permission to forage once they were on the land. More than half (55%) stated expressly that they did not (See Figure 5.4). Moreover, it is not clear from the question or the responses whether such permission that is actually gained is explicit or whether the gatherer presumes that they have permission (e.g. “I only forage on land open to the public”), so the figure of 27% is likely to be an overstatement. One respondent gave an indication of what some of the foragers may be thinking in saying:

No-one has ever stopped me, and lots of other people do it. General consensus is that local landowners don't mind people gathering or using land so long as they're responsible.

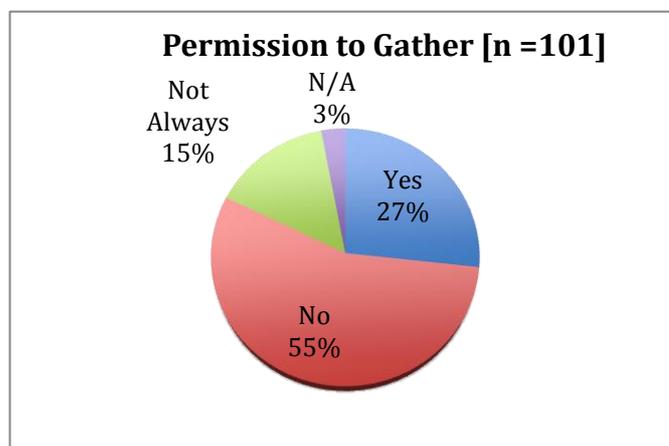


Figure 5.4

This, of course, begs the question of what the ‘general consensus’ is or what amounts to ‘being responsible.’ The former may relate to the perception of foraged foods as being inherently public property (Lee and Garikipati 2011). The latter may lend some support to the contention that modern foragers are acting within certain ill-defined norms or rules.

However, there are clearly limits to the respondent’s understanding. For instance, several individuals indicated that they foraged on local authority or trust lands, which is technically not permitted, though they seemed unaware of this:

I do not forage on land where I do not have permission to enter. Any foraging is done from woodlands, open access moorlands and forest, public footpaths and the highway verge.

Moreover, quite a few commented, “*permission was not needed*”. One, however, knew the distinction between being on the land and foraging and had “*permission to be on land, but not specifically to gather.*” This individual was the exception, however, as most foragers participating in this Survey are either unaware of the issues surrounding access to land for the purposes of foraging, or are unconcerned. A representative response from the Survey was:

Heard of these laws but don’t know what they entail really.

Another stated:

I can’t say that the amount of foraging I’ve done as [sic] ever made me think any laws might apply to it.

An enquiry into the respondent’s knowledge of the specific laws surrounding foraging extends this conclusion and this discussed in detail in subsequent sections. In summary, knowledge of the law seems to be patchy and inconsistent. For instance, many respondents seem to be aware of the

ancient law of trespass (see Figure 5.5 below), yet as noted above in Figure 5.4, fewer than 27% of those individuals had permission to forage on the land - thus indicating a potential discrepancy between these two responses.

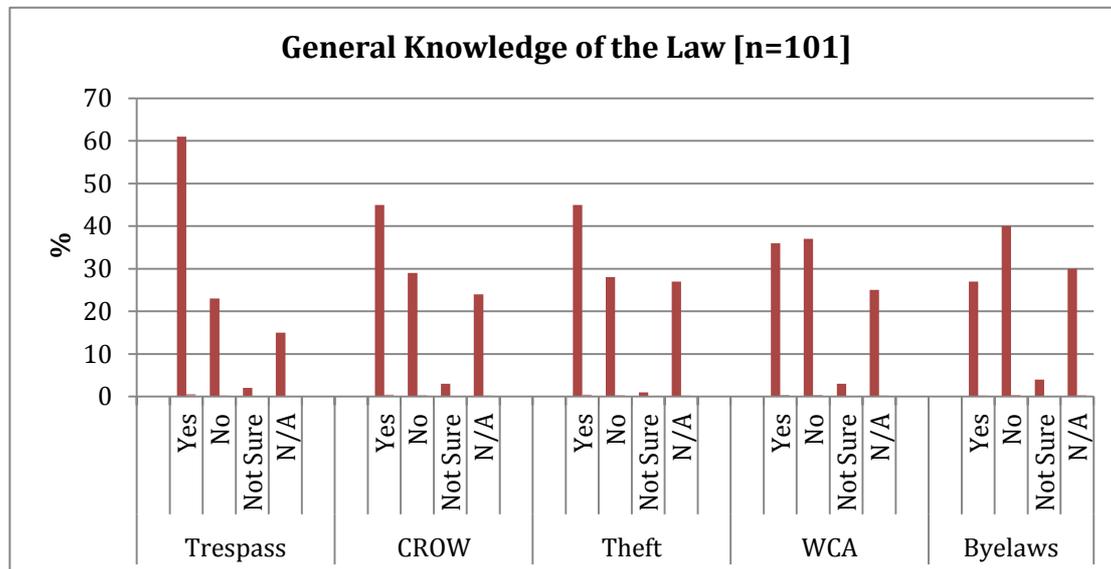


Figure 5.5

Whatever the inconsistencies, it is safe to state that knowledge concerning the relevant laws and byelaws is generally poor. This is evidenced in the comments of one respondent: *“I understand that picking seeds is not illegal.”* Such activity is expressly illegal under National Trust byelaws. Furthermore, gathering may be prohibited in law for several reasons not the least of which includes conservation (WCA 1981), which removes entire categories of plant life from the forager’s options.

The issue of the legality of foraging is a complex one that was also raised in the *Scottish “Wild Harvests”* Report. As with this Survey, Emery et al (2006) found that most gatherers seem to believe their activities are permitted. They sense that they may not have clear support in the law, but presume that so long as they were being responsible, there were little if any

repercussions to their activities. One forager questioned in the *Wild*

Harvests Survey nicely summarized the probable view of many:

I believe that most landowners are not interested in any economic value of the fruit, etc. as 'harvesting' would not be economically viable as the collection cost (harvest) would exceed any reasonable profit (Emery et al. 2006).

As concluded in Chapter Four, a general ignoring of the more restrictive aspects of the law but adherence to certain cultural rules or norms is, in all likelihood, the actual practical effect of the current legal regime surrounding foraging. Whatever the state of the law in practice, the modern forager has several additional resources to call upon to ensure that their activity is permissible. The Botanical Society of the British Isles maintains an accessible database for guidance as to what plants are specifically protected. There are also numerous specific Codes of Conduct, (e.g. www.bsbi.org.uk), which, if followed mean that the gatherer is unlikely to fall foul of most legal strictures. The survey did not ask whether individuals were aware of, or followed, any code of conduct and this is an area that needs further quantitative research.

5.5.2 Knowledge of Specific Laws Affecting Foraging

Common Law of Trespass

The common law of trespass is one of the better-recognized laws, with up to 60% of respondents indicating that they were aware at least of the general implications of going onto land without specific permission (see Figure 5.6). However, this does not mean that the respondents fully understand the implications for the walker as opposed to the forager. For instance, one respondent stated: "*I know it's illegal to go onto a farmers land without*

permission". Actually, it isn't necessarily illegal to wander across a farmer's land. However, it *may* be a trespass should one gather food from that land.

As noted above, only 27% of respondents declared that they have permission to be on the land where they gather, whilst 55% indicated that they do not. This data does not, of course, tell us explicitly whether or not express permission is required. However, these figures call into question the reported 60% of people declaring that they are aware of the common law of trespass.

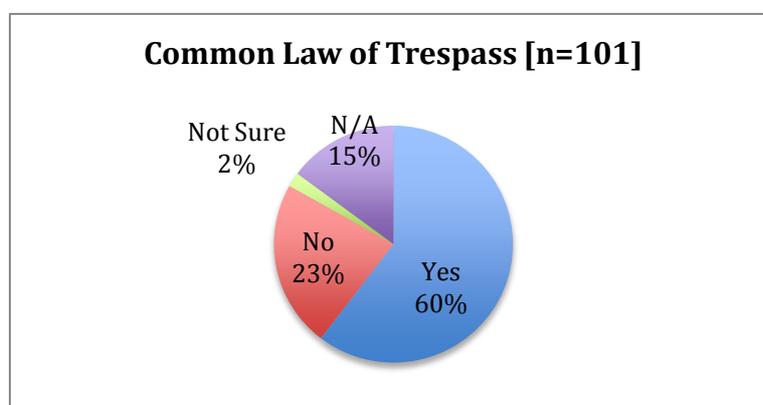


Figure 5.6

If they are aware, and yet so few are seeking permission, then they are quite possibly knowingly trespassing. And this is precisely what one respondent declared:

Don't believe in trespass + go where I like as long as I'm not actually invading privacy near a house.

Theft

Throughout most of history, plant gatherers could rely on upon ancient customary legal rights to avoid accusations of theft. Over time, this enjoyment was eroded to such an extent that, by the time of the decision in *Harrison v. Duke of Rutland* [1893], the public possessed only a limited right of way and no right to do or to take anything whilst passing. But where the plants are regarded as having little monetary value, are uncultivated or form part of the

normal enjoyment of the countryside, there is little indication that the courts will impose sanction under the earlier laws pertaining to theft and this approach is supported in section 4(3) of the Theft Act 1968. The prosecution in such cases must prove that the forager was taking plants for commercial purposes – something very hard to prove in most circumstances. Thus, in practice, the law appears to treat much of commonly foraged produce as inherently public property.

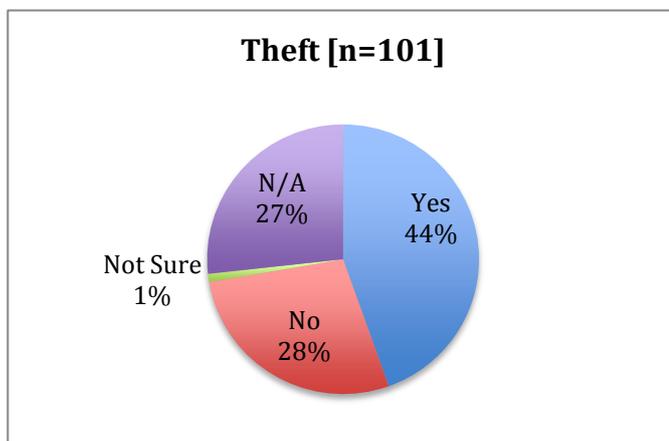


Figure 5.7

The majority of respondents, particularly those over 50, stated that they understood the implications of the Theft Act. However, the younger the respondent, the less likely that they were to know the law or even to answer the question. If there is a strong relationship between the level of knowledge and understanding of the environment surrounding foraging, this may be an obvious corollary. It may be that there is actually little concern about theft: few make any comments at all on the subject, and those that do venture things such as: *“never had any problems with the small amount that we gather.”*

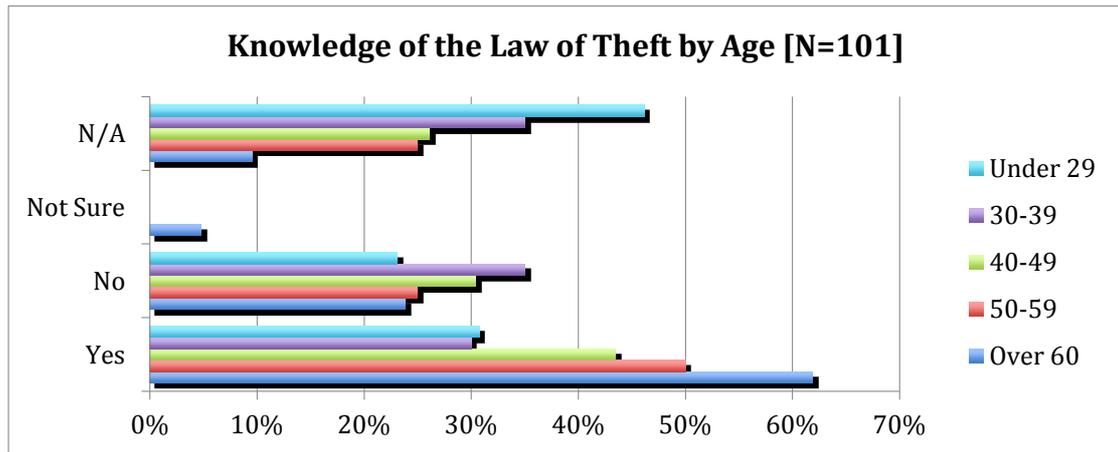


Figure 5.8

The Wildlife and Countryside Act 1981

The Wildlife and Countryside Act 1981 originally provided protection for existing public rights of access, but after the inclusion of the Habitat and Species Directive in 1992 (and subsequent legislation), the WCA also became important for the protection of natural habitats¹¹⁰. This marks an important point in the legislative history surrounding foraging. Ideals of conservation complicated the perception of 'inherently public property', both for the concerned forager and for the legal system surrounding foraging activities. Thus, the Joint Nature Conservation Committee (JNCC) notes in its guidance to foragers that, where conservation legislation and byelaws apply, foraging may not be permissible.

¹¹⁰ Council Directive 92/43/EEC; Regulation (EC) No. 1882/2003, 29/9/03; Council Directive 2006/105/EC, 20/11/2006.

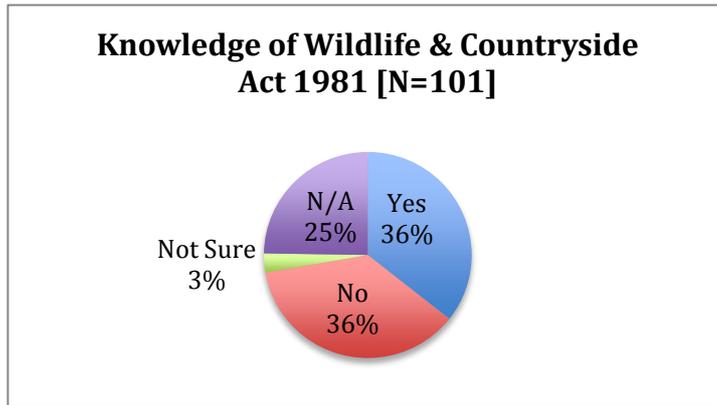


Figure 5.9

Sections 13(a) and (b) of the Act extend special protection to plants that are either in danger of extinction or likely to become so. In line with the requirements of the Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention), these plants are listed in Schedule 8 and are protected against picking, collecting, cutting, uprooting, possession and sale. However, it is important to note that Schedule 8 does not list any of the most commonly foraged plants listed in this Survey, so these are presumably safe to pick with the landowner's permission.

Given that only 36% of respondents were aware of the WCA, it is possible that there is a lack of understanding of the conservation issues surrounding foraging. However, several individuals expressed a general rule of never picking rare or uncommon plants or taking anything from nature reserves. E.g.,

I would never pick a plant I know to be rare/uncommon to the area or nationally.

I do not take anything protected or from nature reserves.

On the other hand, a few respondents made it clear that they knew a bit about conservation law and chose to ignore it:

I sometimes pick on sssi's even though I know it's illegal – but the range of plants are fantastic.

I don't believe you can own nature. It is manmade concept, makes me laugh in wonder.

This raises issues concerning not just the comprehension of the legal structure surrounding conservation, but also the attitude of those subject to it. Conservation Acts expressly remove a plant from the pool of inherently public property and thus they are not open to foraging. It is worth further investigating the reasons why these acts are ignored and how a regime of conservation can be made more effective.

The Countryside Rights of Way (CROWA) Act 2000

CROWA¹¹¹ directly limits the rights of landowners to exclude, giving individuals access over open, uncultivated land covering around four million acres in England and Wales. CROWA does not cover land over which the public already has access, but access in these areas will continue. However, what constitutes “open countryside” under CROWA is still somewhat unclear. Moreover, a right of access – where it can be defined - still does not convey the right to gather plants. In fact, Restriction 2 of the Act expressly prohibits doing so. This provision turns anyone found foraging on access land into a trespasser.

On the other hand, it does not create any specific criminal offenses or civil rights against foraging, nor does it affect any existing rights. So, in the “Note of Information on Schedule 2”, it is clear that any pre-existing voluntary agreement with the owner of access land is not affected. Thus, where there are no conservation issues, foraging can *probably* continue as before. This has yet to be tested in law, however.

¹¹¹ www.uk-legislation.umso.gov.uk; see Sydenham (2002) 4 *Envtl. Law Rev.* 87.

CROWA was recognized by 44% of respondents – one of the highest figures attained. However, this means that well over half of all people answering the question were not aware of it or the implications for them in their foraging activities.

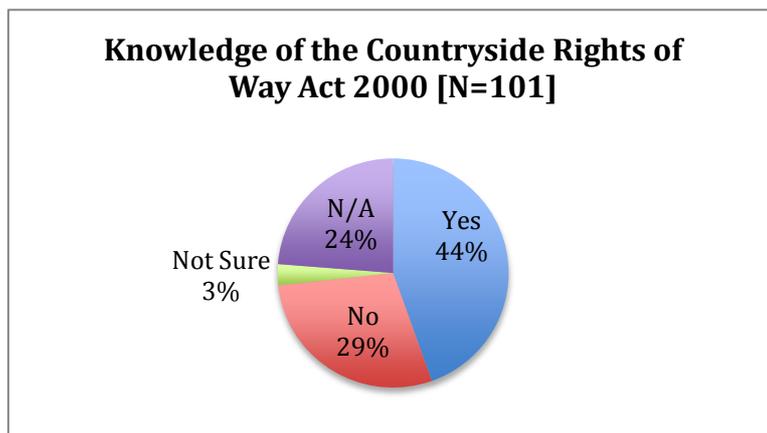


Figure 5.10

One respondent states in bold that in Cumbria, it is known as a “**RIGHT TO ROAM**” [sic]. But, as noted above, the full implications of CROWA appear not to be grasped, viz., that taking of plants on CROWA land is not per se legal. Accordingly, the blanket confidence of the individual making this statement is misplaced:

None of these laws apply where I have picked/pick now.

Applicable Byelaws

As with conservation legislation, various byelaws put strictures upon what can and cannot be gathered. National Nature Reserves, Nature Trusts, the National Trust, the Woodland Trust and local authorities all have the authority to pass byelaws for the protection of plants. It has become common practice to install clauses in most local byelaws prohibiting the taking of roots, foliage or fruits of any plants in the designated reserves. As increasing amounts of

land are governed by these byelaws, it will naturally limit the amount of land on which it is per se legal to forage.

The Survey respondents appear to be particularly unaware of the affect that byelaws might have upon their foraging activities. As noted above, one respondent stated: *“I understand that picking seeds is not illegal.”* Where byelaws apply, picking seeds often is expressly illegal. A large number of respondents (30%) did not answer the question and, of those that did, at least 40% of them said that they were not aware of any applicable byelaws. Analyzing this more closely, 88% of those answering the Postal component of the Combined Survey said that they were not aware of byelaws, whereas the Eden respondents tended not to respond to the question at all. Sixty-two percent of the Eden respondents did not answer the question, but only four respondents stated that they had no knowledge of byelaws. It is not clear why these responses differ, but the non-response might be because the individuals do not think that byelaws are applicable.

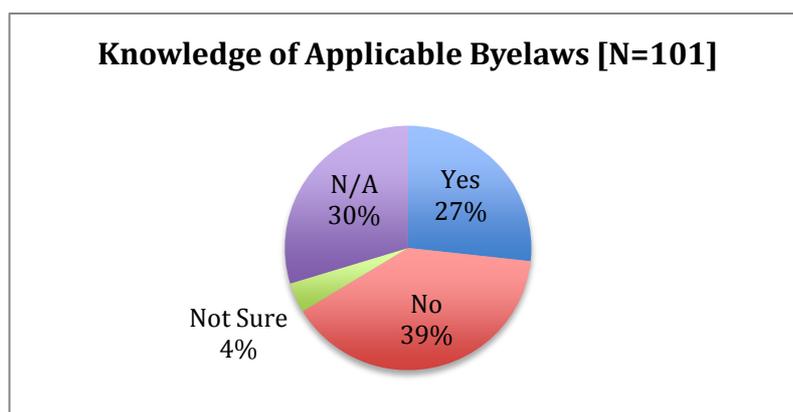


Figure 5.11

However, there does appear to be an interesting relationship between the age of the respondent and their knowledge of byelaws, as demonstrated in Figure 5.12.

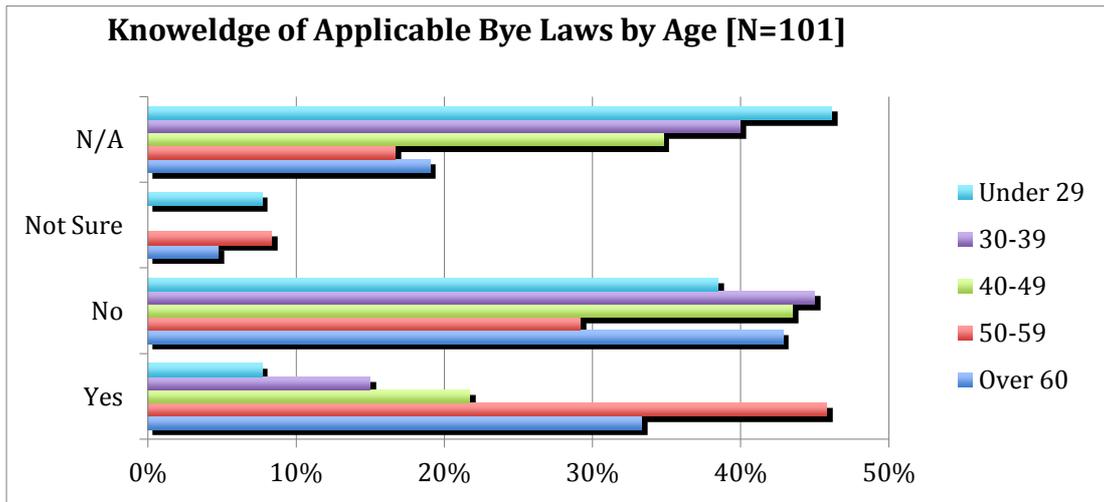


Figure 5.12

Significantly, almost 45% of those between the ages of 40 and 59 knew about the byelaws. This could be due to an increasing membership amongst this age group in organisations such as the National Trust, but equally there may be a number of local government employees or individuals in the sample with a background in conservation.

5.5.3 Relationships between Knowledge of the Law and Other Variables

Knowledge of the Law and Variety of Wild Foods Harvested

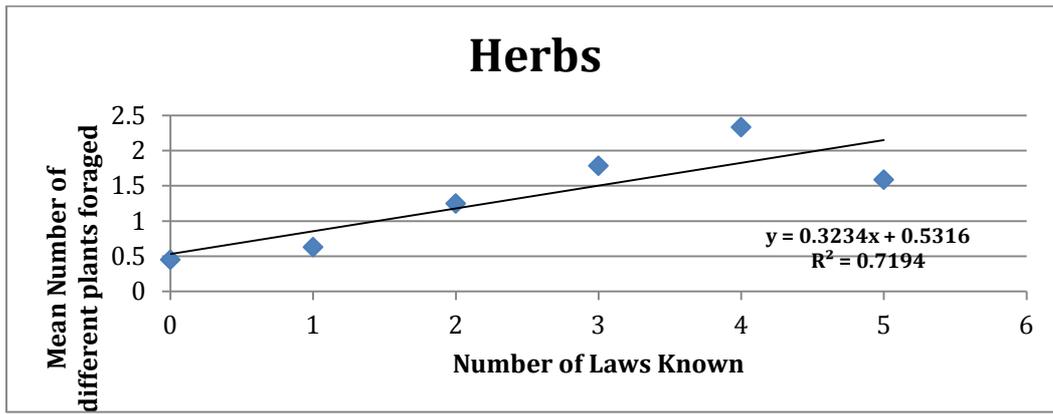
A significant finding of the analysis is that there is a very strong connection between an individual's knowledge of the law and the range of foods that they gather, at least within the broad categories of weeds, herbs, nuts, fruits and fungi. In the analysis¹¹², the mean number of plants per category (x) is plotted against the number of laws known (y). A correlation coefficient above .4 was considered to be significant at a confidence interval of + or – 95%. The statistics give evidence that the greater the scope of understanding of the laws surrounding foraging, the greater the variety of plants an individual is likely to pick.

¹¹² N=101

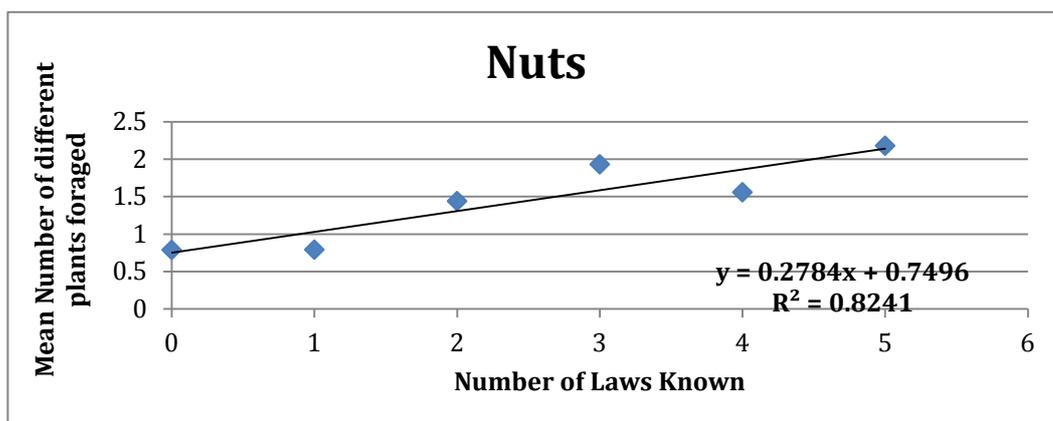
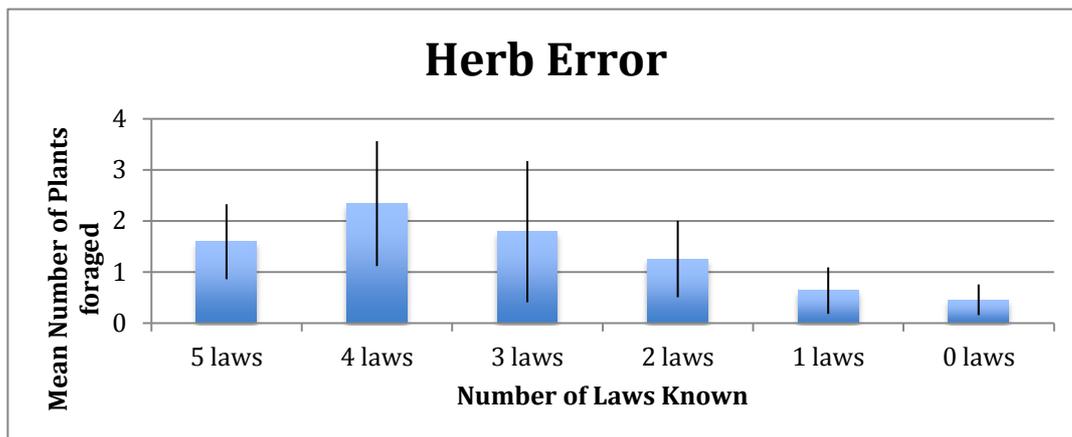
Range of Foods Gathered (x)	y=mx+c	Correlation (r-squared value)
Fungi	$y=.5754x+.5018$.676
Nuts	$y=.2784x+.7496$.824
Weeds	$y = .4392x + 0.8721$.684
Herbs	$y=.3234x+.5316$.719
Fruit	$y=.5381x+1.072$.650

The question is, of course, why this should be? The majority of respondents were not well versed in the law surrounding foraging, but there is a subset of individuals who are, and the data indicates that they are also those most likely to seek out a variety of wild foods. Upon making this connection, the natural hypothesis is that this may be due to the nature of the jobs or vocations of particular respondents. For instance, one respondent commented that he or she “*work[s] for an SNCO so that’s why I’m aware.*” These knowledgeable individuals might be farmers, wardens or researchers each of whom might be expected to know a bit more about the law whilst having a close association with the land. Unfortunately, jobs or vocations are not reliably connected with the level of education, something that would be easily testable from the data; as such individuals may be trained or educated in a variety of ways and to differing levels.

Looking at the various categories in more detail reveals that there is a relationship between the numbers of laws that a forager declares they know, and the varieties of weeds/salad plants, herbs, fruit, fungi and nuts that they pick. The strongest relationship involves nuts and herbs, but all categories are strongly correlated.

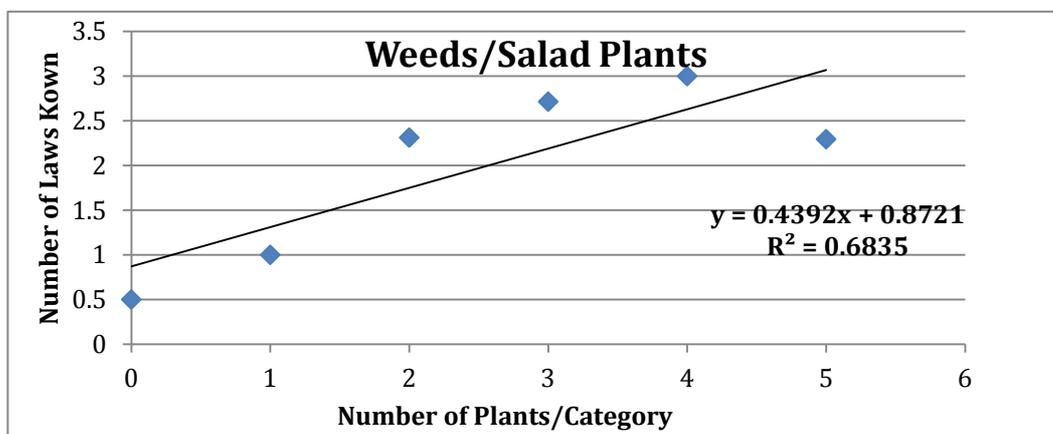
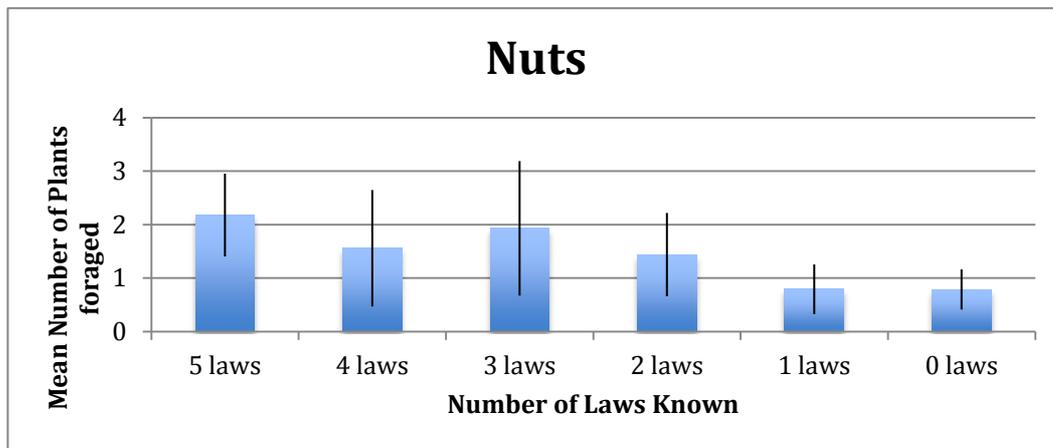


The correlation coefficient indicates that there is a strong relationship ($r^2 = .719$) between the number of herbs picked and the number of laws that the forager knows. From observing the confidence intervals below, we can say that his relationship is also probably significant.

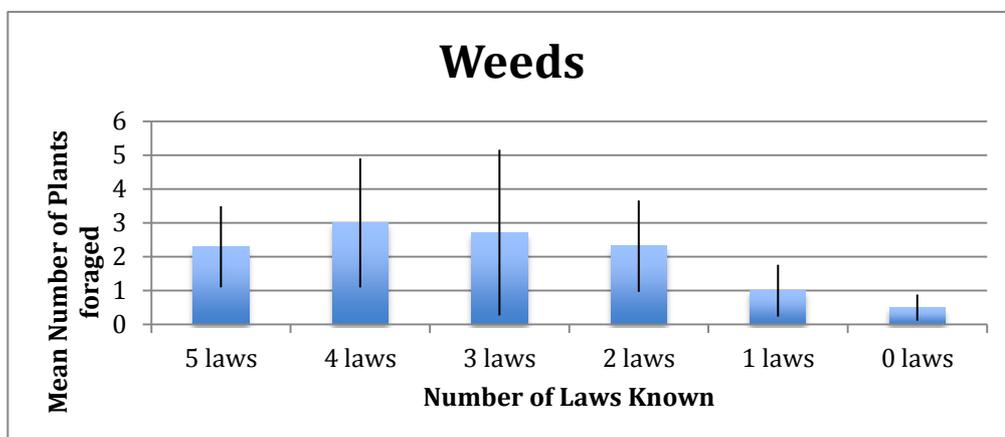


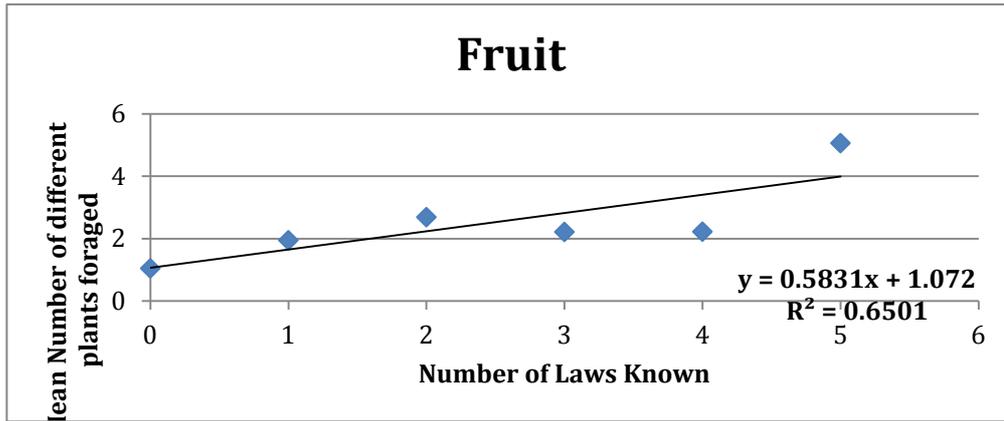
The correlation coefficient indicates that there is a very strong relationship ($r^2 = .824$) between the number of nut varieties picked and the number of laws that the forager knows. From observing the confidence intervals below, we can

say that his relationship is significant, as there is little overlap except for the mid values.

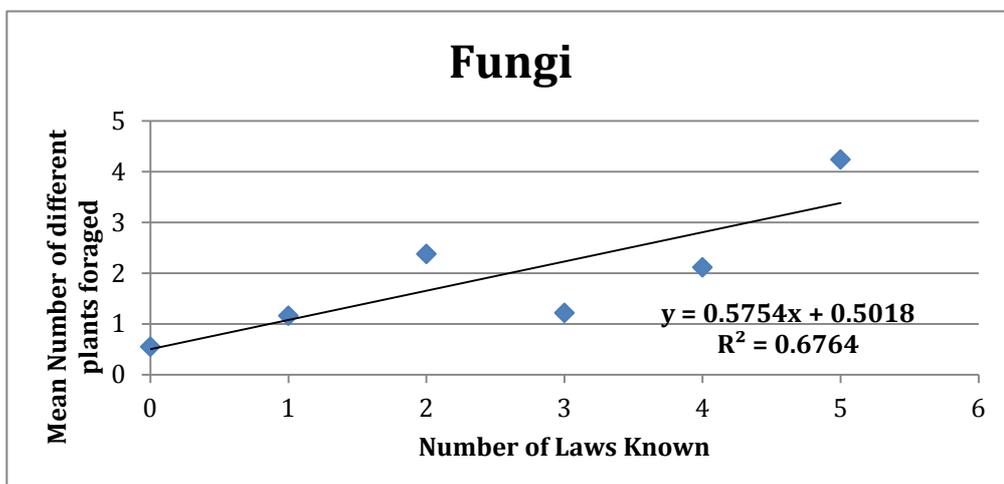
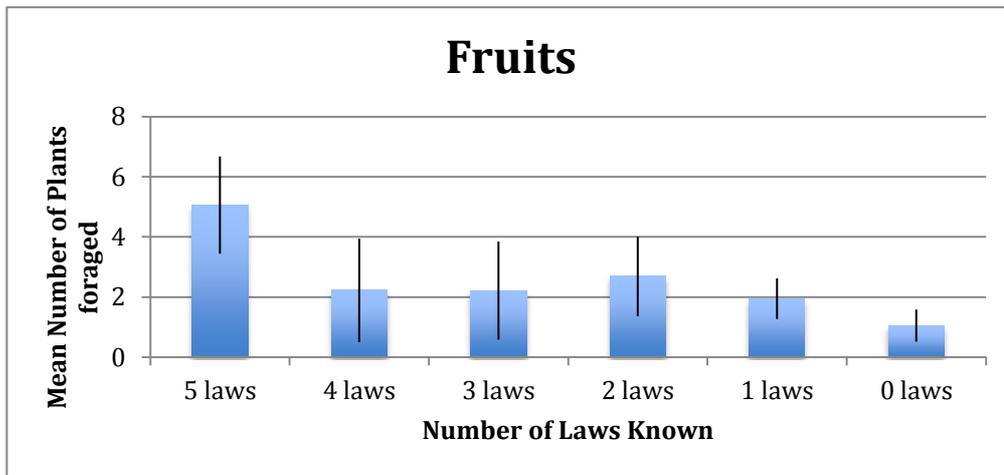


The correlation coefficient indicates that there is a moderate relationship ($r^2 = .684$) between the number of weeds or salad plants picked and the number of laws that the forager knows. From observing the confidence intervals below, we can say that this relationship is probably significant.

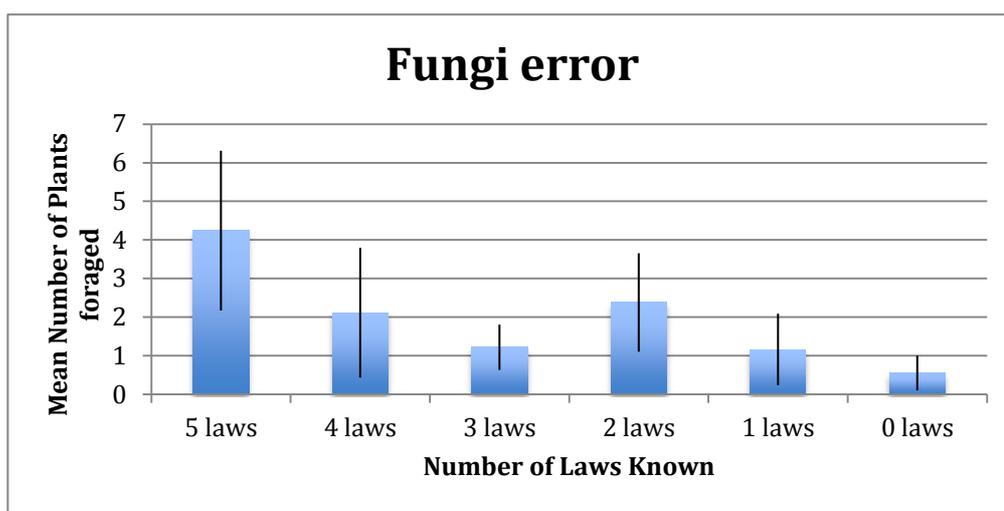




The correlation coefficient indicates that there is a moderate relationship ($r^2=.650$) between the number of fruit varieties picked and the number of laws that the forager knows. From observing the confidence intervals below, we can say that his relationship is probably significant, in spite of the mid-range overlap.



The correlation coefficient indicates that there is a moderate relationship ($r^2=.676$) between the number of mushroom varieties picked and the number of laws that the forager knows. From observing the confidence intervals below, we can say that this relationship is significant, even considering the overlap at the mid-range values.



It seems possible that, as people age and gain experience, their levels of knowledge would naturally increase. That data was thus analyzed to see if there exists a relationship between knowledge of the law and the age of the respondents.

Knowledge of the Law and Age

The age of the respondent (x) was plotted against the average number of laws that they knew (y). A correlation coefficient above .4 was considered to be significant at a confidence interval of + or – 95%. From the correlation coefficient, it appears that knowledge of the law is thus moderately correlated ($r^2 = .575$) with the age of the respondent. And from the correlation and Figure 5.13 below, it appears that the older respondents appear to know, on

average, more of the laws pertaining to foraging than do those younger than them. It is also appears that the law known by older generations is generally more extensive. This correlation may be partly due to age, or to experience, but there may also be a strong association between the occupations of the respondents and this needs to be followed up with additional data.

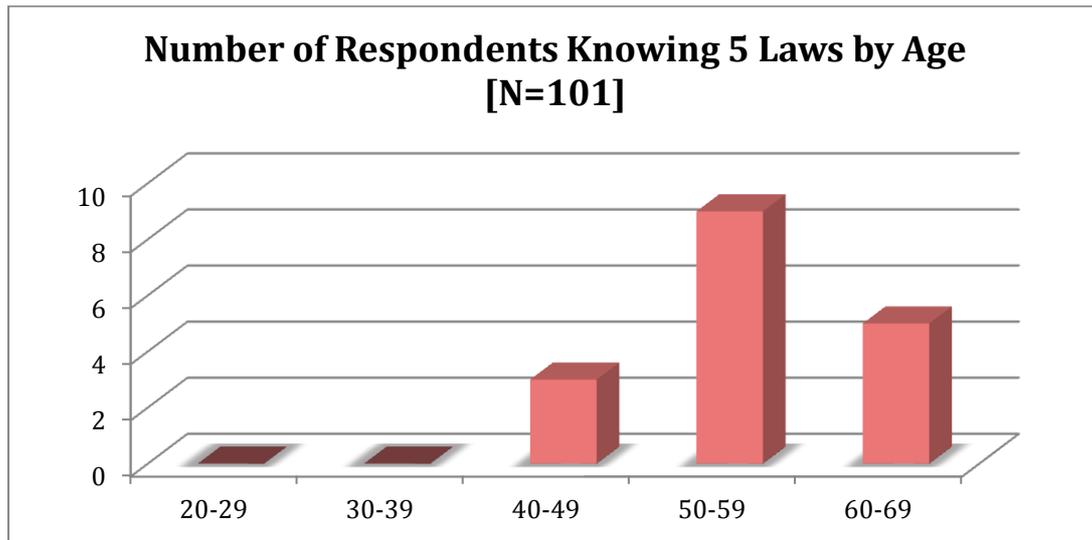
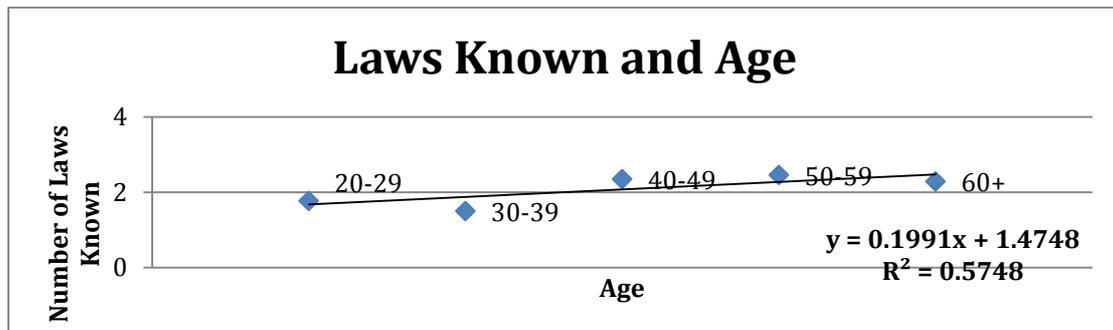
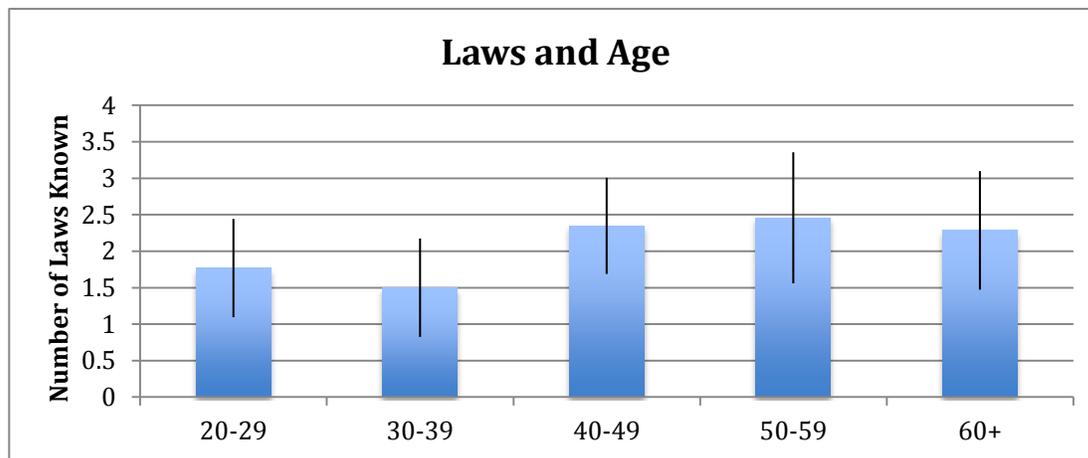


Figure 5.13



However, in evaluating the confidence intervals (CI) on the bar charts below, we should note that the overlap of the 95% CI is greater than the average margin of error. Thus, we may have a significant relationship here, but we need to examine additional data before we can say so with any confidence.



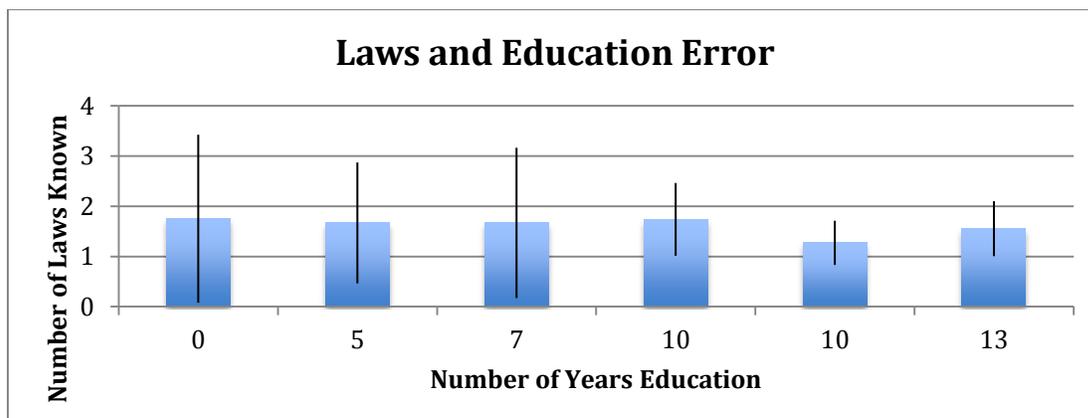
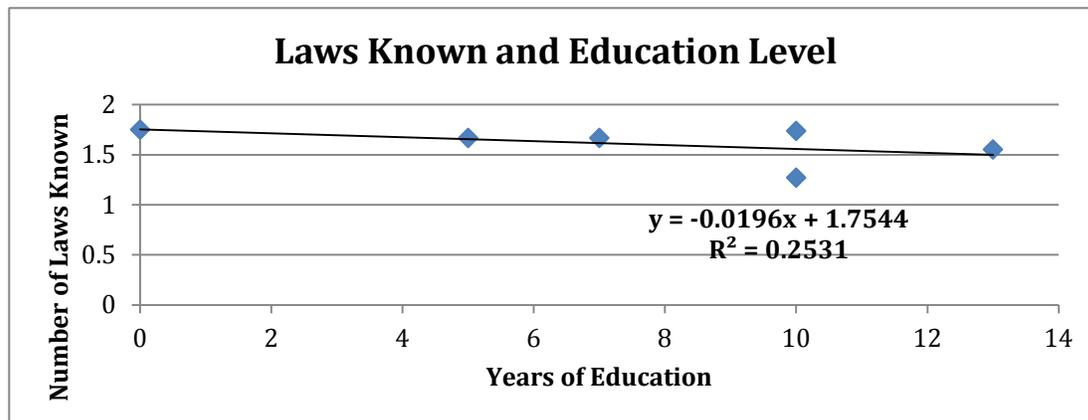
Knowledge of the Law and Education

Intuitively, as with knowledge and age, one might think that a relationship should exist between the level of a respondent’s education and their legal knowledge. However, in a perusal of the raw percentages, a correlation is not immediately obvious as those possessing a non-university “qualification” are often as likely if not more likely to have an awareness of certain laws. Nevertheless, those whose educational attainment does not exceed A-levels do appear to exhibit a somewhat lower level of knowledge than the other categories.

Table 5.8: Percentage of Respondents Declaring Awareness of Particular Law [N=101]

	Post-grad	University	Qualification	A-level or less
Trespass	66%	62%	68%	31%
Theft	45%	41%	58%	38%
CROWA	55%	43%	47%	23%
WCA 1981	45%	30%	42%	15%
Byelaws	38%	19%	37%	8%

To test whether this intuition is valid, the level of education¹¹³ of the respondent (x) was plotted against the average number of laws that they knew (y). A correlation coefficient above .4 was considered to be significant at a confidence interval of + or – 95%. From the correlation coefficient, it appears that knowledge of the law is not correlated with the education of the respondent. The correlation coefficient of .253 is very low and the confidence intervals do not support that the sample means are different as the overlap is extensive.



¹¹³ The level of education was first translated into a number wherein the level of education attained corresponded to an assigned number (of years in education) as follows: no education = 0; O-levels/GCSE = 5; A-levels and Qualifications = 7; University = 10; Post-graduate = 13.

Thus, no reliable conclusions can be drawn as to the effect of education on the level of knowledge about the law surrounding foraging. It could be that legal knowledge is most associated with the respondent's job or experience, but this remains to be tested.

5.6 WHY DO PEOPLE STILL FORAGE?

As Emery et al (2006: 9) found the benefits from obtaining wild foods and the act of gathering it are often one and the same, but that the motivations for pursuing it appear to be myriad. There seems to be a deep undercurrent of emotion percolating through the entire process, making generalizations about the reasons for foraging and the benefits derived from doing it are very hard to make. It is therefore vitally important that the comments of the respondents be given attention, as they have as much – if not occasionally more – to tell us about modern foraging as do the quantifiable survey responses.

This analysis takes two approaches in attempting to do this: one, to try and categorize the responses so as to put the comments into a wider context and allow comparison with other areas of research. The second approach is integral to the first; to reproduce as many of the comments as possible in a digestible format so that the reader can absorb the variety and complexity of the feelings associated irrespective of the category to which the comment is assigned¹¹⁴. The written responses are summarized in Table 5.9, though considerable liberty has been taken in assigning statements to particular categories.

¹¹⁴ From the point of methodology, it is difficult to assess written comments precisely and to assign to a particular category. Moreover, many of the comments fall into numerous categories and so have been included in all that apply. However, the categorization does at least give an indication of what might be of most importance.

Table 5.9: Reasons for Foraging

Reasons for Foraging (Open responses) ¹¹⁵	Responses from Postal Survey	Responses from Eden Project Surveys
Vitamins and Nutrition	3	2
Enjoyment	12	4
Social	5	6
Exercise	6	3
Relaxation	2	5
Connection to the land and the changing seasons	15	11
Love of Food	8	6
Free Food; No food miles	20	11
Teach the Next Generation	1	3

These categories can be further condensed into perhaps more useful general groupings: physical-psychological benefits and socio-cultural benefits.

5.6.1 Physical and Psychological Benefits

Walking is almost a pre-requisite for gathering wild foods. However, as with the *Scottish Wild Harvests Report*, most people saw the walk and the gathering process as more than simply a pre-requisite. Many people were out walking the dog, visiting with friends or returning from other hobbies, such as fishing. The physical benefits to a sedentary society of wandering in the out of doors are self-evident. There has been an enormous amount of research in recent times of the benefits of exercise, and particularly exercise that takes place out of doors (Coon et al 2011). There is perhaps even more to this for the forager as many considered the actual process of gathering and all that goes with it to be wonderful:

The actual experience of gathering [inc. scratches, being outside, seeing wildlife, etc].

¹¹⁵ There were 72 written comments from the postal survey and 51 from the Survey Monkey Surveys, for a total of 123. This is the number of comments NOT the number of respondents.

The psychological benefits of gathering seem often to derive from the connection people feel to the land. Respondents actually state this explicitly:

*Psychological benefit of gathering. A connection to the earth and to nature.
A direct reminder of the fact that food is created by the earth and not Tesco.*

Many individuals find the process of gathering to be relaxing and “peaceful”. One individual summarized what may be a general feeling:

“I find it very therapeutic and relaxing. I’m connected to the land.”

“Fresh air, peace, and pleasant atavistic feeling – good for the soul.”

Unlike the clear benefits derived from fresh air and exercise, the idea that foods taken from the wild are better for you is a pervasive one but one that is only partly supported by existing research (Dangour et al 2010). Nevertheless, some people saw improved nutrients and fewer chemicals as a notable benefit of harvesting wild foods and this may be connected to a socio-cultural view of the merits of wild foods.

“Extremely fresh fruit, etc. – higher vitamin content”

“Fruits free from pesticides”

“Enjoying the [...] products that are free of artificial flavours/preservatives”

“Organic food tastes better than cultivated”

“lovely, untreated produce [...] free of chemicals!”

“An astounding array of flavours from wild foods”

“I think wild food is healthier food”

Curiously, and as with the *Wild Harvest Report*, individuals rarely cited medicinal uses for their gathered foods and this merits further study. With the rise in interest in alternative medicine, many of which are derived from wild foods, one might expect an increase in interest amongst those gathering wild foods. But this

appears not to be the case, either from the comments sections or from the selections of foods gathered by individuals.

5.6.2 Socio-cultural Benefits

As revealed in Chapters Three and Four, social relationships affect, and in turn are affected by, resource usage. The social aspects of gathering are essential to the continuation of foraging and yet this is easy to overlook and difficult to assess. Many of the respondents cited family or friends as a key source of their knowledge of what to gather. In addition, written responses extolling the social side of the activity were quite common; e.g., *“It is quite a social thing.”* As noted in the *Wild Harvest Report* (Emery et al 2006:9):

The social structure of gathering is fundamental to the recruitment of new collectors and the transfer of knowledge, as well as its role in the lives of individuals who engage in the practice year after year.

There is at least a glimpse of the importance of continuity in the comments to the Survey:

The next generation recognize seasonal wild foods and the art of jam making is passed on.

And yet comments entreating that knowledge of wild foods should be passed on are surprisingly infrequent in this sample. Only four comments could be attributed to this sentiment and yet it would seem to vitally important to many if one reviews the comments of people citing parents and grandparents as the source of their current knowledge. This is perhaps one of the more revealing omissions in the Survey. With the advancements in the dissemination of knowledge through books and the Internet, perhaps this “hands on”

intergenerational transmission is no longer deemed as vital as it once was? This is another area that merits further research.

More than being individually important, the whole gathering process may have significance sociologically and culturally, though this significance may differ from that of the past. It is not clear if the respondents share similar political, economic or religious views, but the comments do evidence certain connection. The ideals of “*free food*,” “*partaking in nature’s bounty*” and “*a sense of self sufficiency*” appeals to many of the respondents. So does promoting a sense of community:

Free food! V. Satisfying knowing that it is local and not from supermarkets.

Most obvious benefits are the freshness of the products. The cost is in time not money. As my time is valuable to me, I am happy to spend money on fresh local produce at farmer’s markets where others have spent their time gathering food to sell. In the north of England this is mainly hazelnuts, some fungi & blackberrie (sic), bilberries & damsons.

The idea that by foraging for wild foods (or consuming wild foods) one is serving a social purpose is a powerful one and one that may be intimately connected with people’s sense of self. There is the sense of purpose: whether it be preservation of traditional knowledge, the protection of the environment, concepts of healthy eating or any of a range of associated economic and political concepts. Take what remains unstated in this powerful quote about the benefits of foraging to one individual:

Fresh air – exercise. Good food cheap. Improve knowledge of nature/wildlife. Reaping nature’s harvest – so much goes to waste these days.

This is as much a manifesto as a list of benefits. Those extolling the virtues of free food make up a sizable proportion of the written comments, yet only two indicate that this benefit is financial in any way. As with the quote above, most seem to equate it with an implicit social purpose. The idea is that foragers are the holders (or guardians) of a store of knowledge and tradition. A respondent wrote: “[I] feel an ancient connection to my cultural roots.” And another states a similar view:

I love the feeling of rooting to the land and seasons, the satisfaction of gathering it in myself and an appreciation of the riches of the landscape I live in.

In the end, a drawback of any process of categorization and analysis is that it loses the whole picture – and clearly it is the process of foraging in its entirety that matters: from walking out of the door to putting the last jar of jam on the shelf to remembering all of those that have done the same before you. The best way to illustrate what the gathering of wild foods means to individuals is to let their own words speak:

It is not really about food – foraging is pure joy.

This is not a random point on which to end. Rather, it sets the stage for exploring the next research question. Foraging really is no longer about food. Chapter Six employs bespoke qualitative techniques in an attempt to understand meaning of foraging today.

5.7 FINDINGS: THE MODERN FORAGING ENVIRONMENT

Using quantitative and qualitative data gathered through a series of questionnaires, this Survey has profiled the modern forager and the wild foods that they are currently gathering. It has explored the perceptions of the legal relationship between their activities and the owners of the land on which they forage. Finally, it has opened the discussion as to the motivations of the modern forager in venturing out into the countryside to harvest wild foods. This Survey, though not necessarily generalizable to the entire population of England, has nevertheless provided insight into the foraging environment that exists in England today. These findings are robust, novel and relevant and provide the foundation for considerable additional research.

5.7.1 Who Is Picking and What Are They Gathering?

Many people in England do still gather blackberries and sloes from time to time, but less than half of the actively foraging respondents gathered anything else. This finding has wider implications with respect to our changing relationship with the land upon which we live, but should be followed up with an even larger survey conducted at a variety of venues. Regardless, at minimum, it indicates a wholesale loss of general knowledge as to the location and use of foods that were once a core part of our diet. Those out foraging today are likely to be middle aged; female and highly educated and foraging efforts are generally confined to a few very well known plants, fruits or nuts. This finding corroborates a profile derived from a survey of foragers in Scotland, but the implications of this need further elaboration. For instance, what are the reasons for the relative lack

of foraging by younger individuals? By men? What are the key reasons for a narrowing in the variety of foraged foods?

Foragers have selected roughly 73 wild foods, with the most popularly gathered wild foods including: blackberries, elderberries, field mushrooms, sweet chestnuts, elderflowers, sloes, hazelnuts, puffballs, nettles, ramsons, wild strawberries and mints. This selection differs from that obtained through the Scottish survey and the reasons for this should be explored further. Also, it would be interesting to track the rise in popularity of books and television programmes and to correlate the results with the variety of foods that are being gathered to see what impact this novel source of information has upon modern foraging behaviours.

The survey uncovered that foragers tend to specialize somewhat in the category of wild food that they gather. Fruit picking is the most popular activity of foragers, yet fruit pickers tend to pick little else. Likewise, those picking nuts tend to stick to nuts, those picking fungi to fungi. The potential reasons for this are interesting, but are not obvious without additional research. It may be due to the scope of knowledge, the proximity of food sources or seasonality, but this will require additional research.

5.7.2 What is The Nature of the Modern Foraging Environment?

Most foragers in England are uncertain or unconcerned as to the laws that govern their right to be on land for the purposes of foraging. This finding provides empirical support one of the findings of Chapter Four: that foragers view wild foods as free for them to gather. Thus Lee and Garikipati's (2011)

classification of foraged plants as “inherently public property” seems justified. An additional finding supports Ostrom’s theory that systems of self-organisation emerge in such situations: whilst there is a pervasive ignorance of specific laws, there appears to be an adherence to certain cultural rules or norms. Thus, harvesters may view the process as free and unfettered by laws, but they nevertheless seem to ascribe to some ill-defined form of self-policing, which merits further exploration.

A surprising -and potentially related - finding of the Survey is that there is a very strong correlation between an individuals’ knowledge of the law and the variety of wild foods that they harvest. It seems that there is a subset of individuals who are well versed in the law and who forage widely. Further research is required, as from the data it does not appear that this correlation is in any way connected with the individuals’ jobs or vocations and not reliably connected to age or educational attainment. Conservation legislation expressly removes some plants from the pool of inherently public property and yet these acts appear often to be ignored. This raises important issues for conservation and land management. If foragers treat all wild foods as inherent public property, regardless of the legal strictures, what recourse do conservationists have, particularly where enforcement is difficult? One place may be with the voluntary codes produced by interested bodies and increasingly referred to by those conferring information about foraging for wild foods. An area for future research will be to further explore forager’s attitudes towards and reference to these voluntary codes.

Many foragers surveyed, as in the past, learned where to pick through “local knowledge” or “knowing the area well” as a result of passing foods whilst on walks. Yet, there appears to be surprisingly little inter-generational transfer of knowledge or foraging traditions. Thus, many foragers today are garnering their understanding of wild plant foods from books, the Internet and television and this appears to be supplanting the hands-on inter-generational flow of knowledge of the past. This has implications for the dissemination of many types of knowledge, including what and where to forage, but also how to conserve and manage the land upon which the foraged plants grow and is an area that is ripe for additional research.

Finally, people clearly still are gathering wild plants and yet they rarely appear to do so purely for sustenance. Rather, as proposed after the application of optimal foraging theory to the modern forager, there is a complex mix of physical, psychological, social and cultural drivers. Foraging is done today for an array of reasons encompassing physical, psychological, social, cultural, and even quasi-political. These reasons need to be unpacked and this is one of the starting points for the research conducted for Chapter Six.

CHAPTER SIX: THE BILBERRY - A LENS FOR EXAMINING THE CHANGING RELEVANCE OF WILD FOODS AND THE TRANSFORMATION OF THE FORAGING ENVIRONMENT

“When we try to pick out anything by itself, we find it hitched to everything else in the Universe.”

-John Muir, *My First Summer in the Sierra*, 1911, p. 110.

6.1 INTRODUCTION: PERSPECTIVES, METHODS AND ANALYSIS

Few modern men and women can recall when anyone actually needed to forage for food, though a few, select, elderly individuals may recall the nutrients gleaned from the hedgerows and fields during and after World War Two. The previous chapters explored the evolving behaviours and institutions surrounding foraging, and provided a snapshot of who is foraging today, as well as what they might be gathering.

Optimal Foraging Models can be applied to the modern forager to illustrate the reasons people still forage and help evaluate the changing relationships between people, plants and the environment. As noted by Bowles (2011), the transition from hunting and gathering to farming may owe more to social and demographic factors than to the increasing productivity associated with agriculture. The research conducted in this thesis so far points to the same factors as playing a major role in the emergence of a new, yet somewhat atavistic perspective surrounding the symbolic meaning of foraging. That is, the perceived importance of the wild foods harvest is increasingly social and psychological; it is now wrapped up with foragers' identities and sense of belonging.

The Survey hints at the richness of personal experience and meaning embedded in this process. A complex mix of physical, psychological, social and

cultural drivers appears to underpin modern foraging. These factors act as a proxy for the original model – they are what the modern forager is optimizing. The importance of this subjective perspective was tantalizingly glimpsed in some of the written comments that supplemented the Survey responses:

“I love the feeling of rooting to the land and seasons, the satisfaction of gathering it in myself and an appreciation of the riches of the landscape I live in.”

“It is not really about food – foraging is pure joy”.

The deep interconnection between people, the foraged food and the landscape needs a fuller exploration and this is one objective of Chapters Six and Seven. As noted by Rackham (2003: 16), “a study based on documents, however scholarly, is bound to be weak unless related to what the land itself has to tell [...]” Thus, it is necessary to study individuals and their close connection with a wild food in a particular landscape in order to evaluate meaning.

Whilst there has been little formal research into the meaning that foraging holds for individuals, a substantial amount of research has been undertaken to evaluate the symbolic meaning that consumers place upon material goods. According to Mary Douglas (1976, 2005: 243), the objective of the consumer is ‘to help create the social world and find a credible place in it’. For the balance of the post war century, ‘materialism’ helped to define British society. Tim Jackson (2009: 99) states that: “arguably it is precisely this cornucopia of material goods and its role in the continual reinvention of the self that distinguishes a consumer society from its predecessors.” The society of the modern forager is similarly distinguishable from its predecessors in that individuals have moved away from

reliance upon the land and found sustenance and meaning through very different drivers. Just as we imbue material things with social and psychological meaning, so too do we imbue the process of foraging with a sense of identity, belonging, meaning and purpose. Thus, according to Tom Standage (2009:57), “[a] common feature of the wealthy societies, [...], is a feeling that an ancient connection with the land has been lost, and a desire to re-establish it.” We may be seeing evidence of this in the renewed love of growing food and foraging in the wild.

Since people are the witnesses to this purported transition, their stories can provide us with a vehicle for exploring the terrain. The Chapter covers the personal perspectives of bilberry gatherers, a social history of the bilberry harvests, and the future import and management of bilberry heath land resources. The interpretation of a broad spectrum of variously acquired data requires sound methodological principles, and the Symbolic Interactionism perspective will help to lend consistency not only to the interpretation of the data but will also help to put any resulting conclusions into context.

6.1.1 Foraging as a Symbol

As noted in Chapter Two, this thesis takes a constructivist approach to understanding the transition in the importance of foraging for people. Thus, foraging can be seen as a social artefact, or a “product of historically situated interchanges among people” (Gergen 1985: 267). However, it can also be regarded as something emergent: today, the multiple realities that surround the foraging process are pluralistic and plastic (Schwandt 1998: 236; Denzin and Lincoln 1998; Strauss and Corbin 2008). In the previous chapters, we observe

the symbolic meaning of foraging evolving and an SI perspective is helpful, perhaps essential, to the deeper exploration of the realities that now surround this process. Accordingly, Aldiabat and Le Navanec (2011: 1068) offer that:

Symbolic interactionism provides a guiding framework to collect data about the meaning of a particular type of behaviour and the contextual sources of such meanings, and how they change in and through social and physical time and space.

The meaning of modern foraging emerges out of the interaction with others and also out of the ecological contexts in which it is situated.

This thesis holds that the wild food harvest is a socially and culturally negotiated symbol that is tied to self, identity and a sense of place. SI provides the framework to explore complex modern behaviours and thus account for the nature of the 'foraging' self, individual interpretive ability and the interactive situations through which people construct their reality (Blumer 1969, Prus 1996; Aldiabat and Le Navanec 2011). It thus allows for an ever-deeper evaluation of the complex factors surrounding foraging – including the emotional, psychological and social factors in addition to the economic and legal ones covered thus far (Robinson 2009). The meaning of foraging, borrowing Charmaz's pragmatic, constructivist terminology, can be "local, relative, historically based, situational and contextual" (Puddlephutt 2006:9; see also Charmaz 2006). Further, in attempting to understand its symbolic import, we must be aware of the context in which this harvest occurred, be able to identify the institutions that influenced it and, importantly, to glimpse the spectrum of meaning that it held for particular individuals over time (Charmaz 2006). This

spills over into concepts of place and 'social memory' (Halbwachs 1928; Connerton 1998; Misztal 2003; Nazarea 2006).

We must constantly be aware that meaning for each person arises independently and through a process of reflective interpretation (Blumer 1969: 5). The person has a bifurcated sense of the self. That is, the self exists, but it can also be created – it is itself an object with which to interact. People can thus select, interpret, adapt and employ a particular meaning in way that is specific to that person at that particular point in time. Accordingly, a forager may view the action symbolically yet also be aware of the self as using that symbol for a variety of aims and purposes.

Consequently, the very action of asking a participant to detail their foraging experiences will generally lead to reflective thought and elicit a particular 'foraging self'. In order to obtain valid examples of 'foraging selves', appropriate methods must be selected and the resulting data carefully and transparently analyzed (Chenetz and Swanson 1986; Herman and Reynolds 1994; Charmaz 2000; Butler-Kisber 2010). The next two sections provide an explanation and defence of the methods selected and the analysis employed.

6.1.2 *Selection of a Foraged Food and Refinement of a Narrative Method*

“The naturalists’ journey has only just begun and for all intents and purpose will go on forever. Thus it is possible to spend a lifetime in a magellanic voyage around the trunk of a single tree. That as the exploration is pressed, it will engage more of the things close to the human heart and spirit”.

-E.O. Wilson, *Biophilia*, 1984, p. 22.

In pilot interviews for the Survey, the importance of one plant, the “windberry,” to a participant indicated that an exploration of a single wild food could provide deep understanding as to the significance of foraging in personal life histories. Using one plant as a vehicle for further ethnographic research into modern foraging made sense on many levels. On the one hand, it gave clarity and consistency to the research. A single plant can serve as a social artefact or signifier through which to observe foraging behaviours and the construction of meaning. Thus, paraphrasing Aldiavat and Le Navanec (2011: 168) regarding the SI framework, I could collect data about the meaning of this particular foraging behaviour and its contextual meaning as well as how this may have changed through social and physical time and space.

The Bilberry (*Vaccinium myrtillus*)

The Wilsonian ‘single tree’ of this research is the bilberry - a low growing shrub (5 – 120 cm high) of the damp and acidic heath and moorland that is found all over England, bar parts of Cornwall and the South East¹¹⁶. *Vaccinium myrtillus* is widely gathered, rating 3rd in the Scottish *Wild Harvest* Report and 26th in the Combined Survey (see Chapter Five), so it is a fairly representative wild food but

¹¹⁶ Maps giving the present and historical distribution of *vaccinium myrtillus* and related sub-species are available from the Botanical Society of the British Isles, <http://www.bsbi.org.uk/html/atlas.html>.

not so ubiquitous as the blackberry or sloe. Also, the land management issues surrounding the protection or promotion of bilberry plants are relatively well known due to ongoing conservation work.



Photo 5.1: The first of the summer bilberries (July 2009).

Bilberries are found in a variety of areas: on heaths, bog land, meadows and open coniferous forests of pine, oak or beech (Vander Kloet and Dickinson 1999). They grow from sea level up to around 2600 meters¹¹⁷. The berries are known most commonly as bilberries, but also regionally by other names such as blaeberry, whortleberry and whinberry (see Table 6.1). The five to eight millimetre fruits are deliciously similar to their relative, the North American blueberry, with the flavour varying from tart to sweet depending upon growing conditions. They range in colour from purple black, bluish black to very occasionally reddish blue.

¹¹⁷ www.fs.fed.us/database/feis/plants/shrub/vacmyr/all.html, accessed 18 Nov. 2009, 8:45 am.



Photo 6.2: Bickerton Heath – above Heather Wood (July 2009).

Table 6.1: Regional Names for the berries of *vaccinium myrtillus*.

Blaeberry	Cumbria, Lancashire. Northumberland, Surrey, Yorkshire, (Scotland)
Blueberry	Cumbria, Yorkshire
Bullberry	Unknown- source: Hulme (1902).
Crackberry	Surrey and Sussex
Hartberry	Dorset, Somerset
Hurtleberry	Devon, Somerset
Hurts	Cornwall, Devon, Gloucestershire, Hampshire, Surrey, Sussex
Llus	Wales
Whortleberry	Somerset, Wiltshire
Whorts	Cornwall, Devon, Gloucestershire, Hampshire, Surrey, Sussex
Wimberry	Cheshire, Derbyshire, Gloucestershire, Herefordshire, Shropshire.
Windberries	Lancashire

The bilberry has been recorded as an important foodstuff since before 6200 b.c. (Goodwin 1975) as is reflected in place names throughout England (See, Ekwall 1960). The berries are useful in pies, juices, jams, or wherever other berries might be used. In Yorkshire, bilberry ‘wake pies’ were once a traditional part of funeral teas (Hartley 1950). The leaves and fruits have long been used as dyestuffs. When combined with “Allume and Galls,” the colour could be made

“lighter and sadder” (Coles 1657). Extensive usage in the dye industries continued up until the late 1950s (see discussion below in 6.3).

Bilberry fruits and leaves have been credited with medicinal properties for centuries (Table 6.2; St. Hildegard of Bingen; Hieronymous Bock; Native American folklore). The fruits alone contain at least 15 different anthocyanosides, which are potent anti-oxidants (Jaakola 2003). The plants have tannins, alkaloids, phenolic acids and three glycosides which all have medicinal properties (Edgars 1934; Duke 1997). Bilberries have been used in folk medicine as a mouthwash and in modern alternative medicine to improve circulation and as a preventative for macular degeneration (Edgars 1934; Duke 1997; Allen and Hatfield 2004).

Table 6.2 Medicinal Uses of Bilberries

Historical Medicinal Use	Details	Modern Evidence
Eye Problems	A decoction from the leaves have been used an eyewash.	Alkaloids
Improving Night Vision	Royal Air Force supplied bilberry jam to pilots during World War Two.	
Diarrhoea	Syrup of fruits drunk.	Fruits are astringent and have anti-bacterial action in the intestine.
Urinary Tract Infections	Tea from the leaves	Strongly astringent and diuretic
General Health Tonic	The fruits eaten raw or taken as wine, jam, syrup.	Source of polyphenols (anti-oxidant, anti-bacterial properties, anti-cancer).
Ailments of the liver		Contains glutathione

Sources: Trehane, J. (2004) *Blueberries, Cranberries and Other Vacciniums*. Cambridge, Timber Press; Duke, J. A. (1997) *The Green Pharmacy*. New York, Rodale Press; USDA Human Nutrition Research Center on Aging; Pierre Jean Cousin, *Food is Medicine* (2001); Bomser, J et al (1996) In vitro anticancer activity of fruit extracts from *Vaccinium* species, *Pl. Med.* 62, 212-216. For a full breakdown of the chemicals found in *Vaccinium myrtillus* L., see <http://www.ars-grin.gov/cgi-bin/duke/farmacy2.pl>, accessed 18 Nov. 2009, 10:35 am.

Construction of a Narrative Method

As noted, one can really only understand the importance of modern foraging by evaluating the symbolic meaning that it holds for individuals. This meaning arises through an interaction with a variety of people and is handled and modified via a process of interpretation. It is therefore necessary to explore the life stories of bilberry gatherers and to put these experiences into a social context. In doing so, it is vital to select an appropriate qualitative method that not only takes account of the subjective nature of individual experience but that could also take account of my own role in the process (Baker, Wuest, Noerager Stern 1992; Charmaz 2006). The first method tested, through a pre-pilot, was interviewing using a series of questions. Interviews have been part of the qualitative research

toolkit for a long time and refined techniques such as standardized survey, semi-structured, and in-depth interviews are now well established (Arksey and Knight 1999; Brenner 1985; Seidman 1998; Weiss 1994). In gathering the recollections of people who had picked bilberries, including those who were active in the 1950s or earlier, the issue became which interview techniques would garner the most complete, in-depth stories from elderly and often isolated individuals in a rural community.

Surveys or questionnaires would be unlikely to elicit the deep recollections required for this research as it was not simply the incidents of bilberry picking that are important but also the context within which the foraging occurred. Interview techniques involving structured or semi-structured questions were not ideal either. The two pre-pilot interviews demonstrated the drawbacks of using questionnaires or semi-structured interviews in eliciting rich verbal responses. Whilst the semi-structured interview was an improvement over the straight questionnaire, it also truncated the stories and dampened the colour of the language used by the interviewees.

For example, the second interviewee addressed a question concerning his recollections of picking “windberries” with his mother and sister at Clayton-le-Woods and Rivington Pike in Lancashire. On visits to his grandmother, they went to the Lord Lever Estate where he evocatively recalls picking berries from atop windswept moorland, where the bushes “shivered in the wind”. These warm recollections were the start of a fascinating narrative, but they stalled as the interviewee, wishing to respond to the posed question, felt he had drifted away

from the posed question. In order to capture these stories, which contained the context as well as the detail, it was evident that the narrative was the best choice of technique.

Elliot (2005) traces the history of the importance of the narrative in social research beginning with Daniel Bertaux in 1981 and Eliot Mishler in 1986. Interest gathered pace in the 1990s with the creation of new journals¹¹⁸ and methods (Josselson and Lieblich 1993). Since then, the use of the narrative in research has spread to include most areas of the social sciences. The concept of the narrative has been further developed over the last decade by various researchers (Abbott 1992; Finnegan 1992; Hinchman and Hinchman 1997; Mishler, 1986; Reismann 1993; Somers 1994). According to Hinchman and Hinchman (1997: xvi):

Narratives (stories) in the human sciences should be defined provisionally as discourses with a clear sequential order that connect events in a meaningful way for a definite audience and thus offer insights about the world and/or people's experiences of it.

However, there are drawbacks to narrative methods. First, there are limits on the external validity, or the degree to which a specific sample of narrative work can "be generalized to apply to a broader population" (Elliot 2005: 22). Being able to generalise from the narratives is important for certain questions such as those involving access, foraging trends and traditions as well as variations in land usage over time. Yet more important than being able to generalize to a broader population is that the narrative methods allow the researcher to "create a deeper and richer picture of what is going on in particular settings" (Goodwin and

¹¹⁸ *Narrative Life History* (now published as *Narrative Inquiry*).

Horowitz in Elliot 2005: 26). This richer picture is precisely what was glimpsed in the written comments to the *Wild Food Survey* (Chapter Five). These individual narratives, if not told, will be lost.

Another drawback of using this type of data is the role that the a priori assumptions of the interviewer play in soliciting the narratives. This has been an important focus in recent years (Charmaz 2000, 2006; Holloway and Jefferson 2000; Holstein and Gubrium 1995; Maynard 1994; Stanley and Wise 1983; 1993). As Mishler (1986) argues, an interview involves an interaction between the interviewer and the interviewee and many techniques suppress stories by altering the respondent's behaviour. This can occur due to the nature of the questions posed (as noted above), the techniques used, time constraints or interruptions by the interviewer. Holstein and Gubrium (1995: 39) maintain that the role of the interviewer should be to "activate narrative production" by "indicating – even suggesting- narrative positions, resources, orientations and precedents."

Butler-Kisber (2010: 5) asserts that the researcher must first account for his or her perspective, and then use the particular approach as a lens through which to interpret the work on an on-going basis. By establishing a trust relationship, the interviewer naturally becomes part of the interview and inherent biases or perceived power relationships may influence the recollections of the interviewee. For instance, knowing that I am interested in bilberries may create an acquiescence bias whereby vital material might be lost. However,

establishing the relationship in the first place required that I introduce the project and myself.

The context in which interviews took place is also an issue (Sloboda 2008; Riley 2010). It is essential that I assess and acknowledge any potential impacts from the context of the interview (Refer to Table 6.4 below). The casual discussions required to create a relationship of trust whilst in someone's home naturally influence the nature of the recollections and even their delivery. The methodological question then became how to elicit the most complete stories whilst minimizing the external effect of a more personal approach to interviewing.

An Adapted Biographical Narrative Interpretive Method

After examining all of the extant narrative techniques, an adaptation of the biographic-narrative interpretive method (BNIM) emerged as the best way of collecting relevant stories whilst minimising potential interviewer biases. The biographic-narrative interpretive method (BNIM) is a method for “exploring lived-experiences” (Wengraf 2008:13). It “facilitates understanding both the ‘inner’ and the ‘outer’ worlds of “historically-evolving persons-in-historically-evolving situations” (Wengraf 2008: 15).

This research is concerned with both the current and past experiences of individuals and their relationship with *vaccinium myrtillus*. This is, essentially, the Critical Research Question (CRQ) and thus the adapted narrative approach, in line with BNIM, is well suited “to access vanished and mutated times, places, states of feeling and ways of doing and living” (Wengraf 2008: 20). The fact that BNIM does not impose a rigid framework for questions made it especially attractive for this research.

Recruitment of Participants

A pool of potential interviewees was located variously using a 'snowball technique' (Atkinson and Flint 2001). The first recruits were found by word of mouth (Bickerton). There followed an appeal to regional branches of the Women's Institute (Bickerton, Moel Famau and Dartmoor) and then to various local history societies (Cheshire, Devon, Oxfordshire, Clwydd). Approximately 40 people expressed an interest in telling me their life stories.

Personal contact was then made either by email or through a phone call to assess the suitability of the individuals and whether it was feasible to conduct the in depth interviews. As the objective was to obtain as many interviews as possible, I imposed only very loose criteria for assessing suitability. When faced with time constraints or other issues that forced a selection, I weighed geographical location, gender, age and extent of foraging experience in order to obtain as broad a sample as possible. Individuals who could not be interviewed were encouraged to send me written material on their experiences.

Table 6.3 **Reference Grid- Participants**

Participant Number	Details	Location of Interview
1	Pilot Interview	Pub
2	Female, Cheshire. Youngest of valid responders.	At home
3	Male, Devon. Oldest of valid responders.	At home
4	Female, Devon. Narrative not analyzed -would not permit recorder. Anecdotal.	In a Museum study room
5	Female, Devon and Cheshire.	In a University cafe
6	Female, Cheshire.	At home
7	Two Male Wardens, Clwydd.	At work
8	Male Warden, Cheshire.	At work
9	Female, Focus Group, Clwydd.	In a member's home
10	Male, Cheshire.	In the warden's hut

The interviews were kept as informal as possible and conducted in various locations, including participant's homes, cafes and places of work (Refer to Table 6.3). For some, the situation could be uncomfortable, particularly if they felt intimidated by the formality of the initial question or the approach of an academic interviewer. Thus, I approached the interviewee and established a relationship whereby the interviewee felt as relaxed as possible. We generally had a cup of tea and a chat first, though I declined to discuss the research until after the interview. This natural setting, it was thought, would be most conducive to encouraging a deep exploration of the interviewee's life stories (Riley 2010).

The Interview Sessions

The traditional BNIM methodology consists of three taped sub-sessions. The first session begins with a carefully constructed single narrative question. In this research, this question –or SQUIN (Single question aimed at inducing narrative) – consisted of a derivation of the standard SQUIN used in BNIM methodology:

Please tell the story of your relationship with [bilberries, wimberries, whinberries, blaeberrries, whortleberries]; all of the events and experiences that have been important to you personally. Begin anywhere you would like. I won't interrupt but I will be taking some notes for afterwards.

The first session was methodologically ideal for eliciting the life stories of the participants. Whilst an enormous amount of material outside the primary focus of the research was often obtained, this material provided the context for the participant's relationship with bilberries and was more often than not indispensable. It also provides the substance for much subsequent research into peripheral areas. Moreover, it worked surprisingly well with a focus group and

the interplay between the participants of the group actually improved the depth of the incident narratives.

The second session follows after a short interval and asks for more narrative about some of the topics raised in the first session. The interviewer must stick to the sequence and wording used by the interviewee. The aim is to move the interviewee to reveal particular incident narratives. The second session proved to be a fundamental weakness in the application of the BNIM method as I felt constrained to chase incident narratives rather than knowledge or detail. The participants, many of whom were elderly, were often tired by the end of the first session and reluctant to continue. In the case of the focus group, it was impossible to fully follow the initial narratives well enough to derive questions for the second session. On the other hand, the wardens' sessions produced structured narratives, in line with their professional roles. This made the second sessions superfluous. Thus, in most cases, the second session was abandoned and the third undertaken. This third session, according to BNIM methodology, may or may not be held wherein further narrative questions and non-narrative questions and activities can be posed. As noted above, the third session was often undertaken in lieu of the second. It also occasionally consisted of forays onto the hill to pick bilberries or to examine sites referred to in the narrative.

Reliability is the “replicability of research findings” whilst validity is “the ability of research to reflect an external reality or to measure the concepts of interest” (Elliot 2005: 22). The method used, though not generalizable to a wider

population, is likely to produce results that are internally valid and fulfil the research purpose of understanding individual's life experiences and placing them in a social context. The respondent sets the frame, the tone and vocabulary used. Thus, the research is not at least initially biased by the pre-conceptions or agenda of the interviewer. This therefore helps the interviewer to gain a better understanding of the perspectives and contexts of the interviewee (Chase 1995). This is evident in this research in the widely divergent contents of the narratives obtained (See Table 6.4).

Table 6.4 My Reflexive Assessment:

To what extent am I connected to this research?		To what extent might I help to construct the recollections of the participant?	
Long-term love of blueberries/bilberries and perceptions about their benefits.	<i>This appears to be assumed by the participants. May impact upon interpretation and analysis but not upon collection.</i>	Mild personal discomfort entering into someone's home. This may affect first impression and therefore nature of the narrative.	<i>Easily overcome and diminishes with experience. Should be acknowledged in analysis of earlier interviews or with particular individuals who were interviewed outside of their homes.</i>
Some knowledge of the Bickerton area through walking, with definite opinions concerning the heath land versus birch forest debate.	<i>An important issue in interpretation but not in the collection of the stories provided the interviewee does not raise the issue.</i>	Inclined to engage in conversation. Naturally talkative and personable leading to familiarity.	<i>One of the main benefits of the BNIM method for the research is the minimisation of this problem. Less of an issue in first session but becomes more so in second and third. Decided to honestly respond to questions posed and embrace my role in the narrative production process.</i>
Mild initial bias against the National Trust and its access regulations.	<i>A very important issue in both the interviews (must not be mentioned) and in the interpretation and analysis.</i>	Gender will influence the nature of the relationship with interviewees.	<i>A definite influence, but initially a positive one. Interviewer is not threatening to older ladies who live alone. Did not appear to influence male interviewees, but must be considered in analysis. BNIM method neutralises the methodological impact, at least at first.</i>
No pre-conceived notions or knowledge about the social history surrounding the area. Not encumbered by class considerations but equally perhaps less sensitive to their importance.	<i>This is important in the second part of the collection process where interviewer's sensitivity to the issue may be tested. Very important in analysis and interpretation as the interviewer's background may lead her not to adequately recognise the less obvious connections.</i>	Accent is noticeably American, leading to irrelevant discussions as well as a potential alteration in the depth of description (e.g. assuming that I am not familiar with certain aspects of English history).	<i>Again, BNIM reduces this to some degree, but nevertheless may have influenced the way that the stories were told and the vocabulary that was used.</i>

6.1.3 Analysis and Interpretation

The narrative data concentrates on the subject's point of view and the particular meanings that they attribute to the bilberry harvest. Through the ongoing fieldwork, I developed an intimate familiarity with bilberry heath lands, the flora and fauna, as well as the ecological and social history of the locations. It is within this framework that the narratives were analyzed. The analysis focuses on a specific content of the life stories of the individuals interviewed, the actual events, experiences and importance of foraging for bilberries or managing the land upon which they grow (See, Flick 2009:59; Lieblich et al 1998; Bertraux 1981). The learnings from each area were compared and then linked and triangulated where appropriate, thereby offering even deeper insights into the themes explored. As a consequence, the findings are an original construct, developed through dialectic of iteration, analysis and reanalysis (Berger and Luckman 1966; Guba and Lincoln 1985; Gergen 1985, 1999).

Deconstruction, Co-Construction and Multiple Coding

Analysis of such free-flowing interviews presents a tremendous challenge to the researcher. A biographical narrative does not provide evidence of fact or factual processes, but rather creates time-specific, subjective representations that are influenced by numerous factors. Whilst the audio recordings prompted by the SQUIN "caught" a co-constructed biography, I had to then interpret meaning. Flick (2009: 83) provides a loose framework to make sense of taped recordings that may help evaluate the nature of the response. One needs to ask a series of questions including: What kind of version is the subject trying to construct? What context do they put this particular experience? What kinds of social

processes or changes do they mention about the experience(s) or try to explain to the research or themselves?

Addressing these questions is a first step, but it is also vital that the analysis is done with full cognizance of the interviewer's influence upon the construction of the narrative. That means reflecting upon the nature of the interaction between myself and the subjects and how this may influence the participant, the context and the resulting stories (See Table 6.4). Ultimately, the narratives analyzed in this chapter are co-constructed and will be affected by the assumptions and beliefs of the participants and myself, the researcher.

To try and account for this co-construction, a technique was adapted from Wengraf (136 et seq.), combining aspects of the various techniques developed by Wengraf, Strauss and Corbin, and Flick. The analysis began with short descriptions of each narrative (Flick 2009: 318). Then the data was "segmented" into units of meaning (Strauss and Corbin 1990), then categorized by "grouping them around phenomena discovered in the data" (Flick 2009: 309; See Table 6.5). Next, the relationship between these various categories was explored and finally evaluated at a "higher level of abstraction" that focuses on potential core concepts (Flick 2009: 312). Finally, I used free coding to note anything that I thought might be relevant but that was not accounted for in the process thus far.

From the Survey, I had a sense that people imbue foraged foods with a social and psychological meaning and that this involves a sense of identity, belonging, meaning and purpose. The initial coding and analysis of the narrative data appeared to confirm this sentiment. However, one cannot extrapolate from

the present to the past. I needed to take a step back and enquire as why the subjects told me what they did. As Blumer (1969: 39) maintains:

No theorizing, however ingenious and no observance of scientific protocol, however meticulous, are substitutes for developing a familiarity with what is actually going on in the sphere of life under study.

Table 6.5: Broad Groupings of Phenomena Discovered in the Data

Codification Technique		
By Hand 1	NVIVO	By Hand 2
Context (e.g. patch choice, perceptions of access, mechanics of process)	Time & Place (location, landscape, community, safety, rights of access)	Time & Place (location, landscape, community, safety, rights of access)
Social Processes (e.g. social perspectives, attitudes re: food)	Food & Gathering (utility; physical, psychological and social meanings)	Food & Gathering (utility; physical, psychological and social meanings)
Individual Meaning (e.g. utility, evidence re: tradition, knowledge, meaning)	Self & Others (physical, emotional, norms, attributes, shared knowledge)	Self & Others (physical, emotional, norms, attributes, shared knowledge)
Free coding		Free coding

Accordingly, I adopted a phenomenological approach and questioned everything: how the participants perceived me; why they chose to say what they did to me (and my recorder); why they were saying these things (for me? for themselves? for posterity)? What words did they use and what did they reveal?

In the next pass, I re-coded the data using NVIVO (See Table 6.5) and queried what my question elicited from each particular participant. The question,

Please tell the story of your relationship with [bilberries, wimberries, whinberries, blaeberrries, whortleberries]; all of the events and experiences that have been important to you personally. Begin anywhere you would like. I won't interrupt but I will be taking some notes for afterwards,

was constructed to elicit information about the participant's relationship with bilberries, but not to confine it to this exclusively. In BNIM methodology, context is crucial and the participant related what they wished in the order they chose. Again, at each point in the analysis the researcher must remember that the process of eliciting a narrative is interactive and reflexive. A participant may be simply responding to my question, and dispassionately viewing herself through the lens of subjective memory. Or he may wish to write this particular aspect of his life story a certain way for a personal reason, for instance to set the historical record straight or to influence the listener's perception of time and place.

In the third pass, I used the same rough codes, but focussed the analysis more upon the particular selection of words and how they were used (See Table 6.5). The SQUIN will have prompted the participant to think about their foraging self and what they wanted me (and/or other listeners) to know, but the word choice can reveal much that may be peripheral to this intention. The third pass also allowed for considerable 'free coding' to catch any issues that may have been missed or marginalized previously.

This Grounded Theory approach helped me to understand a great deal more about why these individuals may have told me what they did – and what it may actually mean in the context of my research questions. There will always be questions as to the accuracy of the data that comprise a particular narrative inquiry, but the narrative method and analytical technique adopted here does a good job of addressing some of the more obvious issues, particularly the positioning of the researcher. By insuring adequate width of the evidence, and

full transparency in the entire research process, subsequent researchers will be able to critically examine my interpretations (Leiblich et al 1998). Accordingly, this chapter contains a liberal usage of “I” where my interpretation involves a level of subjectivity.

6.2 THE SELF, THE SOCIETY, THE LANDSCAPE AND ‘Whimberry

Dodging’

“Woven like a tapestry from the lives of its inhabitants, the land is not so much a stage for the enactment of history, or a surface on which it is inscribed, as history congealed. And just as kinship is geography, so the lives of persons and the histories of their relationships can be traced to the textures of the land.”

-T. Ingold, *The Perception of the Environment: Essays in Livelihood, Dwelling and Skill*, 2000, p. 150

6.2.1 Introduction: Responders and Affectors

Humans live in a symbolic world of learned meanings and thus the symbolic meaning of modern foraging is developed through interaction with other people and within the ecological contexts in which it is situated. As noted in Section 6.1, when trying to understand the symbolic meaning of bilberry gathering for the narrator at the time of the interview, I must be aware of the nature of the particular ‘foraging’ self through which they are constructing their reality (Blumer 1969, Prus 1996). Therefore, the aim of this section is to discuss the nature, rather than the content, of each participant’s response to my narrative inducing question.

After exploring, analyzing and interpreting the narratives, two broad themes emerged regarding ‘role-taking’ by the participants and the nature of their individual narratives (Mead 1934). First, one type of participant considered themselves to be ‘*responders*’. That is, a few of the narrators were doing their

best to respond to my prompt in a way that they thought helped my research. Some seemed to consider their role to be to facilitate my research and to reply simply to the prompt and to tell me what they assumed I wanted to know. These '*responders*' hold factual information and wish to convey it, and do not consciously have any other agenda. They were, nevertheless, involved in a passive interpretive process, but the drivers behind this process were not immediately obvious. However, other '*responders*' were actively engaged in a reflexive creation of their own historical identity. They appeared to be formulating their stories in such a way as to create an impression about themselves, or at least who they were and how they have lived.

The second theme was more contextual. The '*affectors*' are attempting to influence the historical record or the listeners' perception of the society in which the participant had lived or was currently living. They were only indirectly concerned with addressing the symbolic meaning of the bilberry harvest to their lives. Neither of these categories is completely exclusive, and most of the participants exhibited elements of both perspectives at various points in their stories. By closely observing the body language and word choices of the participants, it is possible to tease out support for these categories and to infer what these categorical perceptions imply as to the individual meaning of bilberry gathering.

One discovery was that the process of bilberry gathering in the past was indeed symbolic, but not generally of a love of nature or of connection to the land, but rather of a complex social nexus that no longer exists. Some of the

participants situate themselves within this nexus and attempt to define their own historical identities, others to affect the listeners' interpretation of what the particular nexus entailed. For some, like the wardens, the relevance of the social nexus extends well beyond the individual and community to methods of land management and conservation and accordingly this is explained further in a separate chapter.

6.2.2 The Participant's Perspectives and Purposes **A Social Identity and A Sense of Place**

Participants 5 and 6, and naturally to an extent the wardens, reacted initially to the narrative-inducing question primarily as 'responders'. For instance, in commencing her narrative, Participant 5 seemed very nervous – presumably at being interviewed by an academic - and insisted that her husband remain with her. He held her hand and she looked to him often for reassurance. Initially, she seemed eager to give me answers that she thought I wanted, and repeatedly apologized when she thought she had left the topic. She was keen to give me short, objective answers in line with what she perceived to be my requirements, making it somewhat difficult initially to assess her subjective perceptions of the process of gathering.

However, as the session progressed, she relaxed and her answers began to flow more freely. She situated herself within a social context and her words give some hint as to her formulation of self. As per the tradition at the time for the eldest daughter, she left school at 15, trained briefly as an under-nanny, and returned home upon the birth of her youngest sister, to "*look after the children, do the washing, cleaning and ironing*". In her narrative, she does not appear to

reflect upon her circumstances or to evaluate them critically, but rather is simply describing them, albeit from her own perspective. She sets her situation in the context of the hard times faced by her family. Revealingly, after commenting on friend's queries about how her family managed with so many children and so little money, she states: "...but it was just, you know, one of those things".

Her choice of words conveys a very strong sense of place and belonging, but she only indirectly shares with us a sense of her self during the time she lived and worked at home. Her largely non-nostalgic narrative is initially focused on her family and the food that they ate and grew. She reiterates how healthy she and her siblings were and how they did not want for anything. Nevertheless, her delivery is matter of fact.

The narrator was a very experienced picker, and picked every day when the berries were ripe, bar Sunday when she went to church. She would,

Go and sit in the bilberry bushes and pick until my heart's content [...] and used to not go home until the box was nearly full [so] that I almost could not ride my bicycle back home again.

She enjoyed gathering the bilberries and when asked whether she had any memories she would like to share she offered:

No, no just that I was happy picking them and there might be three or four people on the hill with you but you never used to just say hello or you know, you used to say hello and sort of carry on and do the picking. [...]. Yes, but it was lonesome sometimes because I would just get on with it ... and you knew Mom and Dad had let me go and they knew that I was safe, that you know, not like it is today.

There is a lot of meaning packed into this response. First, the passage demonstrates the degree to which Participant 5 was a dedicated picker. She "just got on with [the picking]," even though she found the process "lonesome"

sometimes. She used her “bilberry money” – and other income - to fund trips with friends:

[To] go dancing at Tatton Hall, when all the army was there, the Yanks, the Americans, the English people. Yes so, it was quite good but all the girls used to go down in a bunch and we all used to go back in a bunch, so it was quite good.

With the naming of the proceeds of the bilberry harvest her “*bilberry money*”, Participant 5 reveals the young woman who was not a carer, cook, cleaner nor the eldest sibling in a large family. The money she earned from the harvest, and from other odd jobs, gave her the wherewithal to go dancing and to socialize - to be a young woman. It is notable that the glimpses of self come most strongly in her recollections of her social life. Though she is responding to my prompt rather than engaging, it is a vehicle through which she nevertheless provides useful insights into the society in which she matured.

However, she actually offers very little in the way of information about the process of gathering and what it meant directly for her. Rather, what we catch in this context is a non-nostalgic glimpse of the utilitarian nature of the process in her life. “*It has been a good life, I suppose,*” she declares and she appears to be content to recollect it rather than re-orient it. To borrow from the language of Optimal Foraging Theory: the “bilberry money” was the currency by which she optimized her social interaction – and it was this decision criterion that mattered to her.

There is nevertheless nostalgia for the past – a past where her mother and father knew that she was safe, “*not like today*”, where her perception of safety is obviously eroded – a perception that she shares with other participants.

Participant 5 is merely voicing her feelings, yet this belief in a loss of safety is one that does not appear to be statistically borne out. A brief review of current area crime statistics indicates that there is little crime today in the area where she lived. In fact, for most of 2010 and the first half of 2011, there was no recorded crime¹¹⁹. What is evident, however, is a transformation in ownership of the homes and a loss of local businesses. The area is now very much a desirable and expensive area in which to live, yet most of the local shops and one of the local schools have closed. In her sentiments, there is perhaps more of a sense of loss of community and the metaphorical safety blanket that comes with it?

Participant 6 – a reserved yet confident woman – also responded succinctly to the question prompt, revealing very little of herself initially beyond the fact that she has an extremely strong sense of place and belonging to the land where she has lived almost all of her life. She uses the words “*our own land*” and states, “*we were very lucky to be living so close to bilberry hill.*” She still looks out of her window onto that self-same land and is keen to point out all of the locations referred to in her narrative. She reveals that the bilberry harvest was, for her, about companionship and community:

We enjoyed ourselves on the hill because there were other children doing what we were doing, picking bilberries.

Participant 6, similarly to Participant 5, does not use emotive language, and though she laughed freely and easily, she revealed little of herself or the process of gathering in her narrative bar the fairly obvious facts. Yet for her the

¹¹⁹ Source: National Policing Improvement Agency Crime Mapper; //www.police.co.uk/ accessed 2 June 2011, 6:55 am.

harvest appears not to be an object of nostalgia itself, but rather a recollection that invokes memories of lost friends. Participants 5 and 6 are 'responders' in that they do not consciously attempt to influence the historical record or to create a 'self'. Nevertheless, in their free-flowing narratives, glimpses of these selves emerge that help us to understand the meaning that the harvest held for them.

In contrast, Participants 3 and 10 were much more transparently attempting to situate themselves and were very aware of the 'self' in this process. As noted by Mead (1934:135), the self is an activity that is generated in the social act. It can be reflexive and an object to be regarded from the perspective of others; indeed, from one's own detached perspective. Having a sense of self provides structure around which one can organize and make sense of memories (Conway and Morrison 2010). Thus, many participants were erecting a scaffold from which to hang their individual recollections of the historical events surrounding the bilberry harvest. Participants 3 and 10 were positioning themselves with clear objectives in mind and their language and self-perception are the keys to the formation of autobiographic memory (Wang et al 2011). They were storytellers and viewed me as a vehicle for delivery.

Thus, Participant 3 reflexively locates himself through the stories he tells and this positional identity is clearly important to him. He makes little factual reference to his 'self' but continuously points to sociological and economic differences between his world and that which he perceives today. At the start of

his narrative he declares: “*God, a lot of years have gone by,*” and, much later he reminds me, with a revealing choice of words:

I can still go back nearly 100 years and there is nobody in the village can go back as far as I can because I am the oldest, dubious honour of having the oldest record.

Participant 3 is telling the listener that he is the keeper of this record and that bilberries are simply part of his vast store of knowledge. He is an ‘affecter’ with the credentials to instruct the listener on the history, society and institutions of his time.

His positional identity is thus bracketed by gender as well as by class. There were clearly defined roles and rules to be followed depending upon where in the social spectrum you were, and it is vitally important to the narrator that we - the listeners to his story - understand this. He reports emphatically that his family was “*from the trades*” and relatively well off, so they only foraged for “*culinary purpose.*” He clarifies that the harvest was an important industry for the families of the farm labourers, who were, he says, often “*desperately poor.*” His father was a Master Thatcher, earning far more than farm labourers and, importantly to the narrator, sat higher up the social scale. The farm labourers, he states, occupied the “*bottom shelf.*” Participant 3 reveals that it was “*a point of honour*” that his father would not let his mother pick for commercial purpose. Picking was considered a “*woman and children’s job, not a men’s job.*”

Participant 3’s narrative reveals a meaning of the gathering process that is not romanticized. His mother did gather the berries and, when he was “*about four or five*”, he joined all of the able-bodied women and children who could walk

the three-quarters of a mile to the woods to pick whortleberries. They would go two or three times in July in order to get enough to make pies and “*that sort of thing.*” He did not like picking whortleberries. The passage of over 90 years does not seem to have softened his memory of the forced summer outings:

Because the berries are so small it is such a tedious job, yes, and it's difficult clambering around over there. It's very steep and slippery, you almost want one hand to hold onto a branch and it's a very tedious and miserable job. What with the emmets [ants] and the difficulty of filling a can. We used to pick in a three-pint can and would put a strap or string around your waist and you would pick with both hands [...]. The women would tie a basket around their stomach with the apron and hold it there and they would pick with both hands. But you had, I found it very difficult over there. It was such a steep place and I hated picking whorts – never went voluntarily.

In contrast, Participant 10 was from the other side of the bilberry gatherer's social spectrum – the ‘*bottom shelf*’ referred to by Participant 3 - though he did not identify himself as such. His stories reveal his social class in passing, and the people of his early life seem to hold this class background in common. Rather than to positionally define himself within a social setting, he is most keen to convey his sense of place and feeling of belonging. He picked with his family for home use and to earn money for shoes and clothing: “*it was a regular thing to pick the bilberries;*” “*everyone around here picked bilberries.*” He went “*wimberry dodging,*” as he calls his zigzagging quest in and around the bilberry bushes. ‘Whinberry dodging’ is a semiotically relevant, whimsical phrase, conveying childhood joy and fond recollections.

He provides evidence in support of the importance of the process for his family. In contrast to Participant 3's father, who was socially excluded from the process, his father picked with alacrity:

My father would come up [with] a milk can actually that would hold about 3.5 pounds of bilberries and he could come up here at night, after work, and he could pick that 3.5 pound of bilberries and he would have earned more money than he would have earned if he had been working overtime on a farm in them days¹²⁰.

His aunt was a very serious picker. She would sit and pick quietly and “cleanly,” eliminating the leaves and twigs as she went along. Cleanly picked berries fetched a higher price, and the price she obtained was crucial, as the bilberry harvest constituted a large portion of her annual income. For his family, and for many of his contemporaries, the harvest was an economic necessity. Crucially, Participant 10 positions himself at the point of a social and economic transformation and he wants us to understand its nature:

Well, what happened as time went on, everybody forgot about picking bilberries because, you know, there was more money and the wages was better, and they kind of, it was only the odd ones [who still picked]. It's only just now, there is only a handful of people as I can remember the bilberries that really come picking now.

Better wages meant a better standard of living and, eventually, a higher –or at least less rigidly defined – social standing. For Participant 10's friends and family, the bilberries were a powerful symbol: an economic resource embedded in the social context of their seasonal lives. When these lives changed, the meaning of the harvest changed as well and this is explored in detail in 6.3.

Generating the Social Self

From the above, it is evident that Participant 3 and 10 are actively generating a social self, organizing their histories and affecting our perceptions as they do so. The historical record is clearly important to both of them, as is their place within it. The bilberry harvest appears to be merely a descriptive facet of this

¹²⁰ About 50 shillings a week, according to Participant 10.

autobiographical narrative. The emotion that is revealed is contextual:

Participant 3 hated picking, and “*never went willingly*” partly because of his social position but also because,

the woods in which we used to pick the berries are infested with emmets, that’s a local Devon name for ant, and they used to crawl up my leg and bite me, often in very sensitive parts, which I hated.

In contrast, Participant 10, though he does not say so directly, appears to have fond recollections of, as he names it, “*whimberry dodging*” as a child. He declares that he has “*a lot of memories of picking you know*” and the annual event clearly has import in his life story as a historical marker.

Participant 2 bestrides all categories with her stream of consciousness recitations of oft-told stories and lengthy digressions about the changes she has seen. More clearly than the other participants, she is attempting to reflexively position her ‘self’ and her family in a better time and place. Nevertheless, she is also trying to influence the historical record. Like many of her contemporaries, her childhood was hard, but happy; strict but full of the freedom of the hill, where “*you could ramble all, all day.*” She says,

We used to spend half our days, well nearly all our days upon the hill, all of the children of the village did.

She would ramble for miles and miles on the hill, sit down atop Maiden Castle and take shelter in a cave below when it rained.

Her desire to affect the listener hardens with each story, as she situates herself and her family in a halcyon past. “*You were safe then,*” she felt. As with Participant 5, she equates the past to a time of safety. But she provides a

potential answer for the earlier rhetorical query as to whether this was a perceptual social phenomenon rooted in the loss of community. She declares:

“There was no body about, you know, everybody trusted everybody [...]”.

By this, I assume that she infers that there were no strangers about and that those she knew, she trusted. Therefore, she conveys a feeling of being wrapped in the safe blanket of belonging within a familiar social nexus. For her, it is the loss of this belonging that she wishes written into her story.

She believes that,

It was a lovely life, you know; when I look back, these children [today] don’t know anything.

She is referring here to the “*make do and mend*” culture of her childhood, a theme that she returns to repeatedly in her narrative. Her family had a smallholding with chickens, pigs, a few cows, her father’s horses (he was a horse breaker), an orchard (with walnut, apple and pear trees; damsons and gooseberry bushes) and a large vegetable patch. There were “*no luxuries.*” But everything has changed:

To me the village has been spoilt, it’s bungalows have been built and lovely old cottages have had lumps built on them...

The attitudes have also shifted from one where everyone shared what they had and worked together: “*now that’s all gone today*”.

The bilberries are symbolic of this loss. When the National Trust bought the land where the bilberries grow, the area was “*wired off*” and you could only access the hills through “*lych gates.*” She declares:

I was so mad to think that they fenced it off and you can’t go here, and you can’t go there and then this brae, you see, they put these cows on

apparently to eat the bracken. Well, I have never known cows to [...] to eat the bracken, but apparently these were special cows and they ate the bracken. But I know they used to plop on the bilberry bushes and you couldn't pick any of them.

This was such a powerfully emotive issue for her that she wrote the following poem for the local paper:

We roamed those hills when we were small
From morning until night
And no matter how far you roamed
Twas no wire or fence in sight.
We would cut up through the heather
And struggle to the slars¹²¹
Where if you were lucky you could sit and eat your Mars
We would carve our names upon the rock
That's if we found a space
Then we would climb right over
In fact you would call it a race.
Once on top of the Liverpool Rock
Where on a sunny day
If you borrowed father's glasses
You could see the ships in Liverpool Bay.
Carry on around the bend and what a sight to see
Mad Alan's Hole can into view with all its mystery.
We never lingered very long
It was a spooky sight
With trees and fern so very high
Blocking out the light.
Turn around on familiar ground right along the top
Passing Maiden's Castle then down to the Cuckoo Rock¹²².
We used to pick the bilberries
From the bottom of the hill
For if you climbed up higher, your tot was sure to spill.
The ferns were high and we could not see
But we were safe and we were free.

A bottle of cold water, some butties in a bag,
We used to think it super, the best we ever had.
So please don't spoil these lovely hills with stumps and cows and wire
For if you keep on going there will be nothing to admire.

¹²¹ The "slars" are a striated rocky outcrop above Brown Knowl that arose either from glaciers or emerged via industrial actions related to mining.

¹²² So named "because apparently the first cuckoo that you heard in the village used to come to that rock."

The change in ownership and the active management on the part of the National Trust clearly has struck deeply at the participant's personal sense of belonging. She repeats later in her narrative, "*you can't get through where you used to*" and "*apparently, you can't go up.*" This break with the past has great significance for the narrator – and not just in terms of limiting her freedom of access to her heritage.

Her selection of poetic words is ripe with meaning. Fences and wires are boundaries that divide her present from her past - a place of freedom and autonomy where she used to pick bilberries and roam freely. The bilberry harvest here is clearly symbolic of the joys - and the loss - of her childhood.

In conclusion, the participants reveal a spectrum of perspectives. Responders are facilitators, who view themselves as assisting the research. They answered either factually, or with the aim of reflexively placing themselves in the historical context. Affectors, on the other hand, have an objective – conscious or otherwise – of influencing the record or the listeners' perceptions. Participants 5 and 6 are most clearly responders. Nevertheless, in telling their stories, they provide deep insight into their own sense of place and community and the meaning of the harvest to them. In contrast, Participants 3 and 10 had thought deeply and reflexively about their own personal histories, and, as 'affectors,' are attempting to influence the way that the listener understands.

Participant 2 covers the spectrum by attempting to reflexively position herself whilst simultaneously affect the listeners' perception of the historical

record. According to McCracken (1990: 108), individuals can imbue things with meaning, the import of which harkens back to a 'golden age' in which "life conformed to their fondest expectations or noblest ideals [...]." This "displaced meaning" seems to apply to the bilberry gathering process for several participants. This process may have become a proxy for a bygone era of childhood freedoms. Moreover, it represents the dissolution of one of the social ties binding people to places (See, Robinson 2009). The symbolic properties of the bilberry harvest therefore seem to deliquesce from the socio-economic and historical meanings revealed by Participants 3, 5 and 10 into the much more fluid personal and psychological ones of Participant 2.

6.2.3 The Changing Symbolic Meaning of Bilberry Gathering

For the older bilberry harvesters surveyed here, the process was a much less sentimental symbol of their era, rather the harvest was part of the social and seasonal context of their lives. Each of the narratives at some point hints at a complex nexus involving seasonal, social relationships around which the village life revolved. When this overall context changed, the bilberries became part of a more personal history.

Participant 5 was bound by tradition to look after her younger siblings, but tradition also afforded her the freedom to earn money to fund a modicum of independence. Participant 10's aunt could almost support herself gathering the berries, but Participant 3 was bound by his tradesman's son status not to earn money that very same way. For Participant 6, the hill and the harvest provided a common upon which she could play and socialize with her friends. For the focus group women of Moel Famau, the harvest was an annual excursion, enjoyed by

many but not all. The narrators agree that the process of gathering whinberries, or *llys* in Welsh, was a big annual event in their younger lives. One stated: “*It was a big day, my mother would cut sandwiches, perhaps buttie jams.*” Another explained: It was a “*day out. Take all the children and go pick whinberries.*” The beginnings of a transition to the more modern symbolic meaning can be seen with Participant 2. She appears to invest greater personal and psychological import into the process of gathering than do the other participants. The narrative-inducing question elicits a lengthy recount of the merits of a bygone era full of childhood freedoms and happiness and is punctuated with disappointment, anger and sadness at what she feels has been lost.

As shall be explored in detail in Section 6.4, for the wardens, the relevance of the context extends well beyond the individual and community to methods of land management and conservation. The old ways worked in keeping the heath land alive and the bilberry harvest healthy, but they relied upon the social and ecological connections between the landowners, farmers and villagers in doing so. A large component of the symbolic meaning for them is wishful; it resides in a new future, not in the past. And what of the symbolic meaning of the process for the forager today? From the analysis above, it is evident that we cannot extrapolate from the past to the present. The social and ecological nexus of today is very different from that of more than 60 years ago, and a further exploration of this is offered in the next chapter.

6.3 A SOCIO-ECONOMIC HISTORY OF BILBERRY GATHERING

6.3.1 Introduction

The previous section explored the nature, rather than the content, of each participant's response to my narrative inducing question. It provided evidence of the demise of complex social relationships and a transition in the meaning that foraging hold for individuals. The purpose of this section is to examine the content of these social relationships and the communal life that once characterized heath land villages. Using a selection of methods, this exploration provides further support for the assertion that the association between people and plant-life has changed radically in the past century. According to Standage (2009), since the advent of agriculture, wealth and poverty have been directly associated with land and food. However, as societies have grown wealthier, this connection has weakened, and the social connections have unravelled. The seasonal harvest of food from the commons reinforced social connections and kept villages in tune with the seasons (Chapter Four; Neeson 1993). Local norms, rules and enforcement mechanisms evolved to help sustain the resources upon which the village depended. Now, after generations of relative wealth, there is often little direct connection between what the inhabitants in Britain eat and the land upon which they live.

Likewise, foraged food no longer holds a nutritional purpose, nor does it hold a class-orientated social stigma. Quite the opposite: today, from the Survey results, we see that the acquisition of knowledge about "wild foods" and the freedom and time to gather them implies a level of social and intellectual standing. The aim of this section is to follow this theme and to begin to explore

this transition. Using archival and textual material, narratives, correspondence and field-testing, what follows is an exploration of the social history of bilberry gathering.

6.3.2 *The Bilberry Harvest of the Late 19th and early 20th Century*

Henry David Thoreau took a deep interest in Native American blueberries, and concluded:

[...] from time immemorial down to the present day, all over the northern part of America, (Indians) have made far more extensive use of the whortleberry at all seasons and in various ways than we, and that they were far more important to them than to us (Thoreau in Dean 2001: 49).

Likewise, whortleberries have for generations played an important role in the diets of villagers in Britain living adjacent to heath land. The berries were used extensively for a variety of purposes. Yet, being perishable, bilberries were only really viable to local residents or those who lived in adjacent market towns until the advent of canning processes, which led briefly to a widespread commercial industry¹²³. For the next few generations, bilberries became an important source of income for heath land communities throughout England. On Dartmoor, the harvest took place:

[B]etween that of the hay and the corn, when the solitary places of the moor, whose silence remains unbroken for the greater part of the year, echo to the sounds of human activity (Gordon 1931: 17).

The importance of the harvest in the 19th Century is evident in Reverend E.D. Carr, in “A Night in the Snow: Or a Struggle for Life.” Written in 1865, he opens his short book with a lengthy discourse on the “whinberry gatherings” on the Long Mynd in Shropshire and of the striking amount of money that could be

¹²³ Peter Durand’s containers were in widespread use by the mid-19th Century and, in 1858, John Landis Mason’s “mason jar” led to the mass storage of fruit.

made. Because of the rich, evocative description, it is worth quoting the entire passage (pp. 8-10):

The whole of this unenclosed moorland is covered with gorse and heather, making it extremely gay in the summer time; it is also tolerably abundant in grouse and black game, and so fruitful in bilberries, that from £400 to £500 worth are said to have been gathered on it in the course of a single season. On first hearing it, this sounds an improbable statement; but any one who has been upon the mountain in a good 'whinberry season' as it is called, will readily understand that this is no exaggeration. To the poor people for miles around, the 'whinberry picking' is the greatest event of the year. The whole family betake themselves to the hill with the early morning, carrying with them their provisions for the day; and not unfrequently a kettle to prepare tea forms part of their load.

I know no more picturesque sight than that presented by the summit of the Long Mynd towards four o'clock on an August afternoon, when numerous fires are lit among the heather, and as many kettles steaming away on the top of them, while noisy, chattering groups of women and children are clustered round, glad to rest after a hard day's work. A family will pick many quarts of bilberries in the day, and as these are sold at prices varying from 3d to 5d. a quart, it will be readily understood that it is by no means impossible that the large sum of £400 or £500 should thus be realised in a single season.

To put this into context, the weekly wages of the average farm labourer in 1860 and 1865 ranged between 10 shillings and 8 ½ pence and 11 shillings 3 pence¹²⁴. Thus, if Rev. Carr's account is anywhere near the actual amounts earned, the economic importance of the bilberry season to the heath land communities of the late 19th Century is evident.

According to Colin Spencer in *British Food* (2002), by 1886 through to 1914, the average adult British male still earned less than 20 shillings a week and the working-class diet was exceptionally poor. Diseases arising from deficiencies were very common and erosion in traditional knowledge and usage

¹²⁴ Source: <http://privatewww.essex.a.uk/~alan/family/N-Money.html>, accessed 28 June 2008, 7:00 am

of wild foods had begun. Hulme (1902:4) in *Wild Fruits of the Countryside*, berates the neglect of these resources:

[Wild fruits] do not, therefore, get picked and taken home to be a pleasure these days as the flowers do, and it is a commonplace in proverbial philosophy that the absent meet with scant regard.

He notes how books on harvesting fruits from the hedgerow are conspicuously absent and thus few people seemed to know about the wide variety and many uses of these free resources.

Even where their nutritional benefits went unheeded, the bilberries remained an important part of some rural economies, especially in mining areas. On Dartmoor and Exmoor very large sums of money could be made picking the berries and the wives and children of the miners would spend the season picking as much as they could. There is considerable variability in the historical record as to the prices that could be fetched from the Dartmoor harvest, but it is clear that it was an important source of income for many over the years. At the turn of the century, Crossing (1903) notes that the whortleberries picked on Dartmoor fetched between 6d and 7d a quart.

As noted in Chapter Three and 6.3.5, gathering bilberries is a fairly laborious process. Hand picking can be difficult for many individuals, and not just because one may have to bend down for long periods of time to pick the berries. Other aspects of the process make it tiring: the distances between productive patches, variations in terrain, the fiddly size of the berries and their occasional concealment within dense growth.

Handmade “rakes” were occasionally used historically to gather in large quantities, particularly on Dartmoor and Exmoor. These rakes are roughly five times as efficient at gathering berries in volume (Field Tests 2008-11; below 6.3.5). Curiously, however, there is little evidence that they were widely used elsewhere. Given the prevalence of the “make and mend” farming communities of the time, this is surprising and merits further research. The processing of the berries was also quite time consuming as it was necessary to remove twigs, leaves and stems before weighing. According to an account from archival material:

After picking, the whorts would be taken to a dealer who would measure them in a quart jug, and there would be a cloth laid on the ground, another person would have a tray and quickly shake it up and down, thus causing a draught, the jug would be tilted and the whorts drop to the ground, whilst any leaves or bits of stick would be blown away. The dealers would prefer people who were known as clean pickers, who didn't get too many leaves in their baskets and who kept the bloom on the fruit¹²⁵.

The harvest was a very important annual social event that involved many members of the family. Le Messurier (1966: 227) explains that:

Whortleberry gathering was formerly looked upon as an extension of the harvest, and parties of women and children from all the moorland villages took to the open moor to collect the fruit.

¹²⁵ From Denis Corner, OBE, in <http://www.whortleberry.co.uk/memories.html>, accessed 10 March 2011, 9:30 am. 5:35 a.m. Thanks to Steven Hobbs, Hon. Archivist at Hartland Abbey, Devon for this and other material.



Photo 6.3 Postcard (1908).

It was so vital that children were taken out of school as whortleberry picking was regarded “as seriously as any other form of harvest” (Harvey, 1974: 217).

Evidence of this can be found in various school logbooks illustrating the increased absences occurring around the time of the bilberry harvests. For example, Llantrisant School has a record from 1910 stating: “The wimberry season has now come in and with it the usual Friday afternoon absence. Only 130 present this afternoon out of 195¹²⁶.”

Spencer (2002) maintains that, by 1914, the British working class was better fed owing to a fairer distribution of food arising from rationing during World War I. However, the end of rationing brought a reversion to poorer eating habits - even though a revolution was occurring in food preservation through canning,

¹²⁶ The Glamorgan-L Archives, <http://archives.rootsweb.ancestry.com>. Accessed on Saturday 28 June 2008, 8:50 am.

refrigeration and dehydration. The bilberry harvest may have become less lucrative, as prices appear to have fallen later in the decade. According to Gordon (1931), the berries fetched 2d per quart before the First World War. The price then rose sharply to 2s 6d shortly after the war, and then declined again to 10d in the late 1920s. Whatever the wages of the labourers, the sums obtainable from the berries remained, for many people, an attractive source of income and an important village event.

Participant 3 provides contemporary evidence for this in his narrative. He states that the bilberry harvest was an important industry for the family of the farm labourers, who were, he says, often “*desperately poor.*” His father was a Master Thatcher “from the trades” and relatively well off; he would not consider being a part of this seasonal harvest. Accordingly, Rev. Carr’s observations find resonance of a very different kind in Participant 3’s narrative, which reveals a meaning of the gathering process that was much less romanticized. His mother did gather the berries for home use, however, and he recalls that, when he was “*about four or five*”, he joined all of the able-bodied women and children,

who could walk the three-quarters of a mile to the woods to pick whortleberries. They would go two or three times in July in order to get enough to make pies and that sort of thing.

He did not like picking whortleberries. The passage of over 90 years does not seem to have softened his memory of the forced summer outings:

Because the berries are so small it is such a tedious job, yes, and it’s difficult clambering around over there. It’s very steep and slippery, you almost want one hand to hold onto a branch and it’s a very tedious and miserable job. What with the emmets [ants] and the difficulty of filling a can. We used to pick in a three-pint can and would put a strap or string around your waist and you would pick with both hands [...]. The women would tie a

basket around their stomach with the apron and hold it there and they would pick with both hands. But you had, I found it very difficult over there. It was such a steep place and I hated picking whorts – never went voluntarily.

In his area of Devon in the 1920s, farm labourers were earning around 30 shillings a week. Blythe (2005: 42) notes that, in the 1920s, with the Cereal Wages Board, some famers in Suffolk were earning around 38s 6d for a 54 hour week, though this then fell due to the residual effects of the repeal of the Corn Laws. This compares with the Department of Employment and Productivity (1981) estimate of around £1 for agricultural workers across the U.K. in 1919-1921.¹²⁷ The bilberry harvest was thus very lucrative: just a quart of picked bilberries could buy a workingman a stew and a meat pie for his dinner in 1916 (Spencer 2002: 301). Participant 3 reports:

The whole family would be pressed to go across after school, mothers and children and anybody that was able would go across with cans and baskets and pick whorts all week and then on Friday morning they were taken into market in Exeter by the local carrier who charged a small amount and put [them] on sale in the local market, where townspeople gladly snapped them up because they were something from the country. And that means they earned a few shillings, which of course farm labourers wages in those days were around 30 shillings a week, for a six day week, and that was only five shillings a day, so if a family could earn four or five shillings by picking whortleberries in due seasons, they did, [...].

The carrier he mentions was a farmer who lived in the village and ran the business on the side. The pickers would go over to his house on Saturday and collect the money that he had received from the sale at market. This formed a substantial addition to the farm labourer's seasonal income.

¹²⁷ Source: <http://privatwww.essex.ac.uk/~alan/family/N-Money.html>, accessed 30 June 2008, 7:00 a.m.

The heath land and moorland bilberry harvest remained an economically and socially important event right up to the start of World War Two. St. Leger-Gordon (1950) describes how, just before World War Two, a skilled picker could earn £1 to 30 shillings for just a few hours picking, and this at a time when a farm labourer's wages were around £4 per week¹²⁸. In Somerset, according to the oral history of Stanley Hopper, he had “to go [picking hurts] to get enough money to buy boots for school. Used to sell them to a woman at Honiton [...] who would give me 5d a quart. They would send them away for drying as far as I know¹²⁹.” Since a skilled picker was capable of gathering 20 to 30 quarts per day, he or she could earn a considerable amount, often what at the time amounted to double the day wage of a farm labourer (Gordon 1931: 18). With the onset of a new armed struggle, the harvest was to become even more economically important than it had been before, though in a changing context.

6.3.3 A War-time Surge in Demand

With the approach of another calamitous war, the British government began a planning process to increase agricultural output. The “Dig for Victory” campaign expanded the land earmarked for farming from 12 to 18 million acres (Spencer 2002: 314). At the same time, and with the Ministry of Food's encouragement, an increased use of wild foods was actively promoted. Foods foraged from the heaths and hedgerows provided a substitute for farmed produce. In 1943, The Ministry of Food published a leaflet called “The Hedgerow Harvest” which detailed how to find and prepare a variety of foods commonly found in

¹²⁸ <http://privatewww.essex.ac.uk/~alan/family/N-Money.htm>, as above.

¹²⁹ Oral history recordings, last accessed 2 July 2011, 6:43 am, www.somerset.gov.uk/archives/exmoor/hoppersummary1.htm.

hedgerows throughout the U.K. Several other books followed, including Jason Hill's 1944 book, "Wild Foods of Britain." Colin Spencer (2002: 315) relates how blackberries, sloes and rosehips were picked and:

[D]amsons used for cheese, rowans for jelly, beechnuts made into butter, pine kernels could be gathered and roasted, chestnuts made into a soup and walnuts picked.

The war was calamitous, but the British diet was healthy and the dinner table spread often full of natural produce. According to the older women of the Moel Famau focus group, foraged food played a big role in their wartime diets.

World War II generated demand for bilberries initially because of the need for soft fruits for jam making and partly to supplement rationed foods. But as the war progressed, the berries were also needed in the dye industries for uniforms and tank covers. D. St. Leger-Gordon (1950: 249-250) relates, "when chemicals replaced natural dyes and the lichen industry¹³⁰ died out in consequence, whortleberries continued to be used up to the present day [circa 1950] for the rich Tyrian purple they afforded."

An increase in demand leads, *ceteris paribus*, to an increase in price, which in turn drives an eventual increase in supply. The 1940s and 1950s thus became quite possibly "boom years" for bilberry gathering. St. Leger-Gordon (1950: 255) relates that,

The whortleberry picker of the last generation could gather as much as 20 quarts in a day, that is to say 30 lb., for which he seldom received more than 5s. Now the output has considerably declined, but the remuneration exceeds the old Moorman's dreams of avarice. I know people who once picked for 1d. per quart. The price paid in 1942 was 2s. 6d. for the same

¹³⁰ St. Leger-Gordon records that, between 1762 and 1768, 100 tons of tartareus lichen were extracted for a purple dye.

amount, but during the following seasons it was controlled at 9d. per lb., and the output declined proportionately.

He notes that whortleberries, as a crop, were “far more profitable than good cultivated land of corresponding acreage” (St. Leger-Gordon, 1950: 255). During this boom, a picker could make from £1 to 30 shillings in “a few hours without great difficulty” (St. Leger-Gordon, 1950: 256). One 74-year-old man reported that, in 1942, he picked 400 quarts of bilberries during his free time, and he estimated that he earned around 2s per quart (St. Leger-Gordon, 1950: 256). The demand became so great that, rather than having to transport the berries themselves to market or to a carrier, “competing dealers drove their vans onto the Moor itself and so intercepted the harvesters as they returned” (St. Leger-Gordon, 1950: 256).

This was the economic context of the harvest for the family of Participant 10. He picked with his family for home use and to earn money for shoes and clothing. To keep the children amused, they used to give them “*little paste jars which we could put only a few in, and then you would run back to the main basket and tip the bilberries in and you didn't get bored doing that.*” His mother used to pick for bilberry jam and puddings and would store the excess in kilner jars. But his father picked for the money:

My father would come up [with] a milk can actually that would hold about 3.5 pounds of bilberries and he could come up here at night, after work, and he could pick that 3.5 pound of bilberries and he would have earned more money than he would have earned if he had been working overtime on a farm in them days¹³¹.

¹³¹ About 50 shillings a week, according to Participant 10.

As explored in the previous chapter, his aunt made most of her living through the harvest. She would sit and pick quietly and “*cleanly*,” eliminating the leaves and twigs as she went along. The preference for ‘clean picking’ may be why few ‘scoops’ or ‘rakes’ were being used to harvest the berries. Regardless, his father and aunt optimized their take in both volume and quality so as to earn the most revenue. They sold their takings to a Mr. Moulton, who visited his “*regular spots*” at teatime in an old black van. He was the “*main man*” as he paid the best rates for the berries. Mr. Moulton sold the berries for dye making, echoing the Dartmoor practice described by St. Leger Gordon.

From the stories of Participants 5 and 10, it is evident that the crop was economically valuable to individuals as well as to families. Participant 5 “*never went short of anything*” even though she grew up in a crowded house during the war and post-war years. She and her eight brothers and sisters gathered bilberries – and various other fruits and wild foods – for their own table. But for her, much of the utility derived from picking the bilberries came from the money that she received from their sale, which she then spent on social events. Since the narrator worked at the family home from the age of 15, she had to find other sources of income in order to visit friends and go to dances. Participant 5 first earned her “*bilberry money*,” as she called it, when her father took the berries she had gathered to the market to sell. He would put her share of the proceeds into her Post Office Savings book. Later, as the war effort intensified, the berries were in great demand for creating the grey and blue dye used to camouflage

tanks and tents. She recalls a man coming from the Potteries once a week to collect the berries that she had gathered. He gave her a better price than she could get at the market, and so she became a regular supplier directly to him.

Participant 5 would ride her bike to meet friends and they would all go to the dances. She craved the interaction with her friends and maintained that she would undertake any “*little job*” to earn whatever extra money she could: cleaning, babysitting, sandwich and tea- making as a “*still maid*”. The bilberries were a very good source of income and a job that she didn’t mind doing and she became a very experienced picker. She would “... *pick, pick, pick turning the bushes over because underneath the bushes there used to be the big ones, you see.*” The condition and size of the berries dictated the payout, so the size and the quality of the berries mattered. If the berries were a bit soft, the price was “*knocked down.*”

Participant 6, who used to gather with her sisters on the hill, corroborates her contemporary’s account of bilberry gathering. They would complete their homework and head up afterwards to pick. What they gathered would then be bought by Mr. Harding, who came and blew his whistle every afternoon between four and five o’clock. He would weigh his takings in his van, pay the pickers, and then take the bilberries into town and sell them on. The narrator cannot recall how much she was paid, but “*it wasn’t much.*” She nevertheless liked the pocket money that she got from it: “*It wasn’t a well paid job but when you are children and you haven’t any money, well it is, isn’t it?*”

What is notable from the stories of Participants 5 and 6 is how their activities seem to be diverging from those of the previous generation of pickers. Theirs is a more individual pursuit – akin to an after school job today – for the purpose of gaining pocket money and a modicum of independence. The family as a whole was often not part of the process. The harvest seems to be involve children rather than families and those making their living. A disconnect appears to be emerging, the traditions changing, and this is to only grow wider as the war years fade into memory and the modern British post-war economy takes shape.

6.3.4 The Declining Economic Importance of the Bilberry Harvest – and the Demise of the ‘Purposeful Foragers’

Demand for the bilberries for military usage will have naturally waned after the war, but it may have been reallocated to the non-military domestic dye industries or to the markets, at least for a period of time. However, the era of plant-based organic dyes was almost over as industrial giants such as DuPont and ICI began producing cheaper synthetic dyes (Ashok 1993). Thus, the demand for bilberries for the potteries will have dried up, and unless the supply was temporarily re-directed to the local market, this would have impacted the local foraging industries. With the changes that were consolidating in agriculture at the same time, the market window for bilberries was closing.

Nevertheless, the austerity arising from the war and its aftermath was to last until 1953. Food was often unappetizing and rationing covered everything, even bread, which tasted so poor that according to Spencer (2002) “it hardly needed rationing at all.” At the same time, agriculture was irrevocably transformed by the Agriculture Act of 1947, which rapidly led to an increase in

mechanization and fertilizer use and a corresponding decrease in agricultural employment. The 'great abandonment', as Ronald Blythe called it, had begun in 1881 and continued apace (Blythe 1969, 2005: 19-20). As Participant 10 evidences, over time there was less and less need for the wages that could be had working the land. And there was now an obvious cost to growing or gathering your own food, as Blythe (1969, 2005: 107) reveals in his portrait of a rural Suffolk gardener of the 1960s:

The village gardens aren't as good as they used to be for the very simple reason that a man can go to work for an hour or two extra and earn enough money to buy vegetables for a week, whereas, if he grows them he's got to dig, buy seed, sow, hoe, water, worry take up and I don't know what – and all for something he can buy for a few bob.

The industrialization of agriculture had been gathering momentum for some time and this goes a long way to explaining the move away from 'purposeful' foraging. Fewer agricultural workers meant less people for harvesting the berries. Furthermore, the better and more reliable wages found in other jobs led workers and their families away from the land, and meant that there was a higher opportunity cost associated with the harvest. Yet the increase in techniques for food preservation – including canning and freezing – led to ever increasing reliance upon retail products and processed foods. This in turn meant a further unravelling of the social and seasonal connections surrounding the harvest.

At the time of the Industrial Revolution, according to Spencer (2002: 246), "the growth of the market economy had already undermined local self-sufficiency and enmeshed the village in a network of cash sales, for it was not immune to

the popularity of the imported foods, such as tea, coffee and sugar.” The industrialization of food continued in earnest, fomented by new technologies. Thus, as fewer heath land residents harvested the berries, and industrial supply chains became established between commercial producers and retailers, local markets dissolved. As Michael Pollan opens *The Omnivore’s Dilemma* (2006: 6):

The industrial revolution of the food chain, dating to the close of World War II, has actually changed the fundamental rules of this game. Industrial agriculture has supplanted a complete reliance on the sun for our calories with something new under the sun: a food chain that draws most of its energy from fossil fuels instead.

6.3.5 The Socio-Economics of Modern Bilberry Gathering

People surrounding the heath land of modern Britain, as a rule, no longer forage for bilberries to supplement their income. Where they forage purposefully, they do so generally for personal use, and not as part of a seasonal or social process. A gradual change in foraging behaviour marks an erosion of the historical tie between the individual, wild foods and the land. Participants 3 and 10 provide evidence for these socio-economic changes. For instance, Participant 3’s wife still picks the berries, but for him she is the exception:

People don’t need to today, you see, unless they wanted them especially for a tart or something of that sort, but I don’t think that many people would stain their fingers picking whortleberries today. There is no poor that need that sort of thing.

Participant 10 concurs:

Well, what happened as time went on, everybody forgot about picking bilberries because, you know, there was more money and the wages was better, and they kind of, it was only the odd ones [who still picked]. It’s only just now, there is only a handful of people as I can remember the bilberries that really come picking now.

As the economy of Britain developed over the last century, and people no longer obtained income from the bilberries, foraging for them gradually ceased to be a means to an end. Where individuals forage purposefully, they do so generally for personal use, not for money. Thus, as Participant 3 states, there may not be much need for “*that sort of thing.*” The gathering ceased to have economic import and became little more than an atavistic tradition, full of memories and modified meaning.

The changes in local agricultural practice were augmented by a massive increase in trade and retail outlets. Foraged bilberries naturally became relatively more expensive to the end consumer. For instance, beginning in the 1940s, Poland became a large bilberry and blueberry producer and exporter to the U.K. and was soon joined by Spain, Argentina and the U.S.¹³² According to Webb (2011), the familiar highbush blueberry of the modern shop first entered the U.K. in 1952. Thus, though the bilberry harvest was important to the heath land communities for the first half of the last century, its relevance has steadily declined to the point where almost no one in the U.K. picks the bilberries commercially any more. A few stores and producers still use locally grown bilberries, but not regularly and not on any significant scale.¹³³

Why should bilberries from Poland be commercially viable but not those from the moors of England and Wales? One can speculate that it has to do with relative labour costs, but it is necessary to put some numbers on the process to

¹³² Source: J. Lee, interviews and market research.

¹³³ Source: Author’s market research. Morrison supermarkets were still very occasionally selling bilberries as of August 2009. Also, a few makers of bilberry extract and related health products use locally grown berries, but not exclusively and none of the manufacturers or retailers could give reliable figures.

test if this is justified. A series of small-scale experiments were run over a four-year period to determine the rate at which an average adult could gather the berries using traditional methods. As noted above, a substantial income could be earned though picking bilberries. Thus, St. Leger-Gordon (1950) describes how a skilled picker could earn £1 to 30 shillings for just a few hours picking, and this at a time when a farm labourer's wages were around £4 per week¹³⁴. To make such a comparison with wages today, it is first necessary to establish how much a skilled picker can actually pick and this was attempted through a series of field tests.

Hand picking can be difficult for many individuals, and not just because an individual may have to bend down for long periods of time to pick the berries. Other aspects of the process make it tiring: the distances between productive patches, variations in terrain, the fiddly size of the berries and their occasional concealment within dense growth. Concealment is not a particular problem on the heath land at the top of the first test site, Bickerton Hill, as the bushes form dense carpets across the entire area, but at Moel Famau, with abundance of old heather stands, it can be.

The gathering sessions involved between two and five volunteers¹³⁵, and used a random walk process in most instances, depending upon conditions and topography. As in the studies done by Hill and Kaplan (1988), search and processing times were assessed using a stopwatch and the amounts acquired weighed using professional scales. The tests are, however, unrealistic in several

¹³⁴ <http://privatwww.essex.a.uk/~alan/family/N-Money.htm>, as above.

¹³⁵ Standard University of Liverpool practice was followed regarding informed consent for participants.

respects. First, there is wide variability in the potential costs of commercial picking. The berries need cleaning and processing, and this is time consuming and not factored into the final price. Other costs are also not evident: travel costs, container and storage costs as well as other overheads. Moreover, only a few commercial pickers would be able to sell straight to the public. Rather, they will need to go via a seller or agent who will take a sizable cut. Thus, any prices quoted below are the maximum that a picker is likely to receive.

An initial base line test was undertaken at a fruit farm where the gathering was easiest owing to the proximity and linearity of the bushes. The picking rates, representing a theoretical maximum, ranged between 5.5 and 9.5 grams/minute. Hand picking here was relatively easy. If we estimate that a skilled picker could average around 75 grams per minute, then in an hour of picking, they could pick around 4500 grams of fruit. The average punnet of blueberries weighs 200 grams and prices average around £2.52 in the supermarkets and on-line stores (Pricing Survey 2008-2010). A skilled picker could thus potentially earn around £63.50 less costs where there is no middleman.

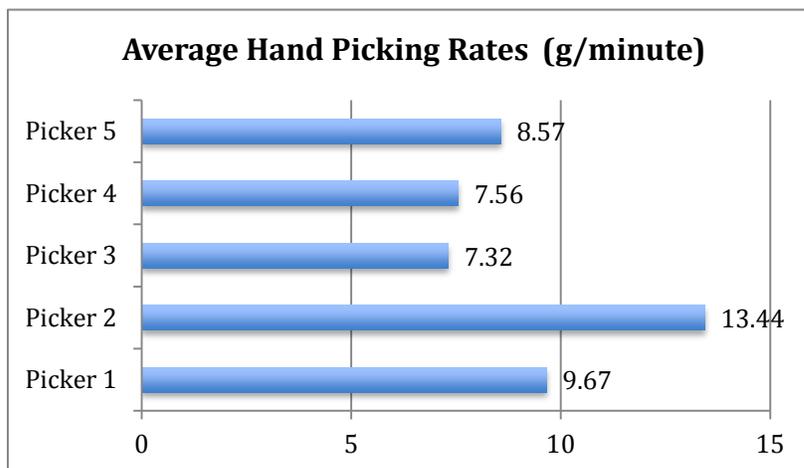


Figure 6.1

At the two test sites, Bickerton and Moel Famau, the more applicable average was 10.51 g/min, with a wide range from 5.4 to 17.4 grams per minute gathered. It is notable that the two main pickers improved their picking rates over the four years of the test. Thus, we can conservatively estimate that if a skilled picker could average *at least* 10.5 grams per minute, then in an hour of picking, they could conservatively acquire around 630 grams of bilberries. Again, the average punnet of blueberries weighs 200 grams and sells for around £2.52. Were a hand picker to sell these berries at a market, they could earn roughly £8 per hour less costs where they sell directly to the consumer. This is a good wage, in line or higher than the minimum wage available in other employment settings.

Moreover, in the experiments using a bilberry rake¹³⁶, the acquisition rate was considerably higher, with rates averaging 54.95g/min as opposed to 9.32 g/min by hand (for all gatherers). Gathering by rake was consistently around five times more efficient than gathering by hand. The range was 35.4 grams per minute at the low end, all the way up to 72 grams per minute by the most experienced user.

¹³⁶ Rakes were not used at the fruit farm test sites.

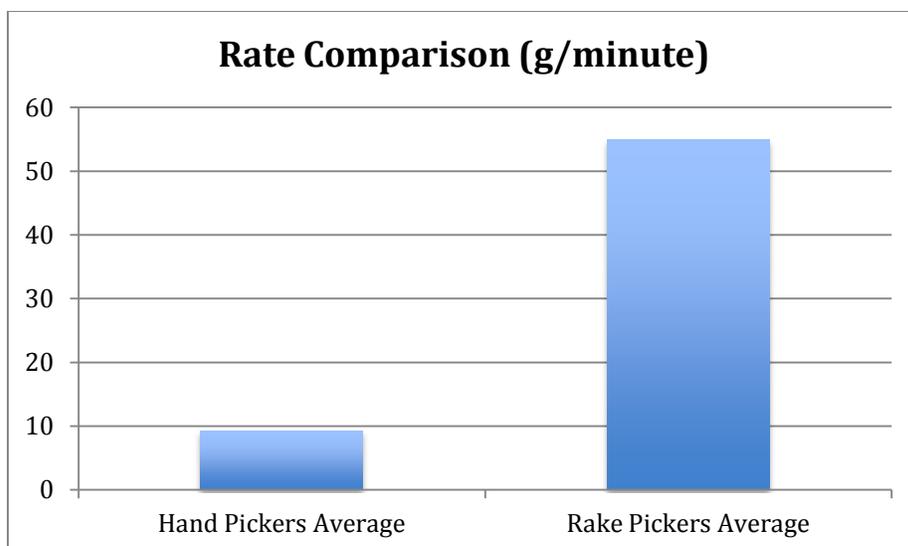


Figure 6.2

If we use 54 grams per minute as the average rate of a skilled “raker”, then we can estimate the hourly return as 3240 grams per hour of gathering. This is still lower than the rates observed at the fruit farm, but substantially above the handpicking rate. Thus, for a 200-gram punnet at £2.52, a bilberry gatherer could earn around £40 for an hour of work, less costs and with no middleman.

Whilst these values are merely estimates – and variable ones at that – it does raise issues as to why the industry is no longer commercially important. Blueberries are now touted as a “superfood” and fresh berries or their derivatives are for sale in just about every fruit market, food store and health food shop in England and Wales. Yet these berries are almost entirely imported – and those that are grown in England are generally non-native highbush blueberries grown on fruit farms (See Figure 5.3)¹³⁷.

¹³⁷ E.g. The Dorset Blueberry Company, www.dorset-blueberry.com; The Organic Blueberry, www.organicblueberry.co.uk; Fairgreen Farms, www.blueberrypicking.co.uk; Sharcott Farm in Exford. As

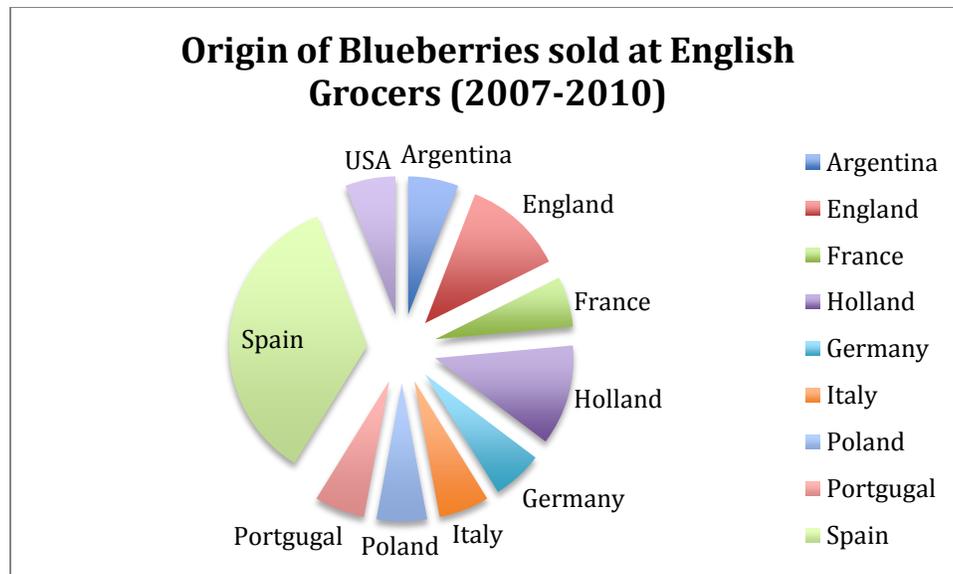


Figure 6.3 Source: Market survey J. Lee (2007-2010).

A rate £40 per hour is not an insignificant sum, even where one factors in potential costs and the use of middleman. In 2010, the hourly wage of a Grade 1 farm worker was \$5.95¹³⁸. Moreover, there may be many marketing advantages to the sale of domestic bilberries that might justify a higher average sale price. The berries freeze and dry well, and so could provide an income stream beyond the July through August fruiting season.

In contrast to the demise of the bilberry industry in England, the wild huckleberry industry of the Pacific Northwest in the U.S. is still very viable (Richards and Alexander 2008). In a model that seems transferrable to English heath land communities, buyers pay individual harvesters – using rakes – to gather the berries. Perhaps the reason the industry remains moribund lies outside the potential earnings from gathering? Commercial foraging is illegal without

of 10 August 2010, 3:00, there are also 13 pick-your-own farms that offer blueberries listed in England and Wales. See, www.pickyourownfarms.org.uk.

¹³⁸ Source: Agricultural Wages Board. www.defra.gov.uk, accessed, 10:00, 10/8/2010.

express permission of the owner of land, and coupled with issues concerning land management and perceptions of access, these factors may have an even greater bearing upon the loss of the industry than simply a socio-economic shift. But this does not explain why a regenerated bilberry heath or moor would not provide valuable income.

Thus, it is not simply that there are no longer any poor. Nor that farm wages are so high as to make bilberry picking unpromising. It is more than this: jobs are more structured, bills more regular, employment regulations and pension provision more complicated. Also land ownership has changed, the relationships governing access more remote, and the structure of society very different. There may still be poor today; but they are not typically foragers. Moreover, to return to a key finding of this thesis, the social associations connected to the harvest no longer exist. Families from the 'lower social orders' no longer regard the harvest as a seasonal social event. They may even view it negatively, with its past associations with class and poverty. Young men and women of the heath no longer covet the 'bilberry money' to be had from a day's work on the hill. Terry Lloyd, a pig farmer in Ronald Blythe's *Akenfield* (1969), reveals a reason:

The truth is that there is a void where the old village culture existed. Ideas, beliefs and civilizing factors belonging to their grandfathers are not just being abandoned by the young countrymen, they are scarcely known (Blythe 2005: 213).

In conclusion, this exercise hints that the relative wage differentials may not fully or even partially account for the demise or current absence of a viable bilberry industry. The reasons are more complex than this and are connected with the industrial and social transformation of England following the Second

World War. First, fewer agricultural workers meant fewer opportunities for harvesting the berries. The social and seasonal import of the event declined. Second, and relatedly, better and more secure wages implied that the opportunity cost associated with the harvest became too high for many who had engaged enthusiastically before. Third, with the rise in processed and preserved foods, industrialized food chains took over the supply and distribution of fruit and vegetables, leaving localized markets – and tastes - moribund. And finally, the culture of the heath land and moorland villages changed as each of the threads in the old social nexus progressively unravelled.

6.4 THE FUTURE IMPORT AND MANAGEMENT OF BILBERRY HEATH LAND RESOURCES

6.4.1 Introduction

The complex social and economic environment surrounding bilberry harvesting in Britain has changed in the past century such that few vestiges of the original nexus of relationships remain. The purpose of this chapter is to introduce one consequence of its demise, the alteration of ancient systems of heath land resource management, and to explore how conservationists and wardens are currently trying to create the modern equivalent of those defunct efficient, collaborative systems.

As noted by Charles French (2010: 443), “humans have altered the landscape for a very long time.” The heaths and moors of England, once vitally important to the surrounding communities, were managed collaboratively by the landowners, farmers, foragers and miners who relied upon them. As explained in the preceding section, this system broke down after World War Two and was dealt a fatal blow in the 1960s and 70s, when much of the remaining moorland was lost along with the knowledge and practices that sustained them.

This discussion begins with an illustration of the decline of bilberry resources through a longitudinal study of areas of heath land on Dartmoor and is followed by an exploration of the nature and consequences of this decline in terms of heath land management. Finally, through the narratives of three wardens, it explores current efforts at collaborative management of heath land resources. The wardens’ narratives reveal a managerial role that provides an additional lens for exploring the interconnection between land usage and

traditional practices. They see themselves as the “keepers” of traditions and ideals, but these roles manifest in distinctly different ways.

6.4.2 Historical Discontinuity: What Happened to the Dartmoor Bilberries?

A search of the literature citing bilberry gathering on Dartmoor in the early 20th century turned up a selection of readily identifiable sites for gathering. As noted in previously, the bilberry harvest was, for many years, a vital industry as well as a treasured social event for people living in the communities adjacent to the heath. The decline of those same bilberry moors is evident if one compares the writings of last century with the bilberry cover in the same locations today. St. Leger-Gordon (1950: 255) relates that:

During July and August, when the whortleberries are ripe, there is scarcely a rocky valley within walking distance of a roadway where parties of men, women and children may not be seen working with unceasing diligence throughout the long summer days.

The vast majority of these important sites are now devoid of edible fruits. After identifying a selection of sites from the historical record, each location was surveyed during the productive season. The condition of the existing plants was documented, and any potentially relevant observations noted for the record. The survey is not conclusive in that the time frame was too short, and consequently, factors such as the patterns of grazing and density of livestock could vary. Likewise, climatic conditions might vary over a longer time, also producing differing results. However, the results support the anecdotal evidence obtained through requests for information from historical societies and Women’s Institutes in the area.

Table 6.4 follows the fortunes of several sites in and around Dartmoor where the whortleberries were once plentiful. Each location in the table was of a documented site used by generations of villagers, yet most of these sites are not now managed as bilberry heaths, and little remains of the bushes bar the occasional tiny, close-cropped stem.

Table 6.4 Time Series Survey of Historical Bilberry Sites on Dartmoor

O.S. Ref.	Location Name	Historical Reference	Data Collection Period 22/7/07 – 25/08/08
673 697	Ringle shutts	Le Messurier, p. 227	Recent swaling in area. Dense bracken growth. No trees but a mixture of grass, gorse, heather, bracken and bilberry; Bilberry plants = 1in. high with evidence of shearing; Evidence of rabbits (droppings) with visuals on cows, sheep and horses grazing. Sleats still visible and forming deep gullies.
64 65	Stony Bottom on the Erme	Le Messurier, p. 227	Mine workings below moor. Bracken dense below bracken line. Above line is a very dense bilberry heath with close-cropped bilberries (1 in.). Visuals on sheep, cattle and horses. No evidence of rabbits.
605 785	Foxholes on the Doe Tor Brook	Le Messurier, p. 227; Hemery, p. 918	Pillow mounds above wood with bilberries interspersed among rocks. Small (1 in) and chewed. Visuals on cattle, sheep (not Blackface) and horses. Possible rabbit droppings.
61 77	Wistman's Wood	St. Leger-Gordon, p. 254; Harvey and St. Leger-Gordon, p. 129.	Beautiful oak wood managed by English Nature. Fencing has led to very dense re-growth with evidence of brambles, ferns, wildflowers but no obvious bilberries. Above fences had growth, but chewed to 1 in. Below fences were reeds, bracken, grass, etc. but no bilberries. Evidence of horses (droppings) but no visuals.
64 62	Pile's Wood or Copse	St. Leger-Gordon, p. 254	A 6 ft thick wall, breached in several places allowing sheep access to copse. Ancient oaks with mossy undergrowth containing ferns, sorrel, and wildflowers. No evidence of bilberries inside wall. Outside wall, dense bilberry heath but close cropped (1 inch) alternating with very thick growth of bracken. Evidence of rabbits (droppings) and visuals on sheep and cattle.
72 71	Ausewell Rocks & Wood	Le Messurier, p. 227	Pine Plantation: very dense, no undergrowth. Old Growth: Oak, Hazel, Silver Birch with heather undergrowth. Bilberries growing under old growth. Very small, no blossoms, 1-2 fruit per sq. metre.

* O.S. refers to the Ordinance Survey Maps



Photo 6.4 Ringlehuts, Dartmoor (2007). Note the dense bracken growth.

Brian Le Messurier (1996:27) refers to the places as “whortleberry gathering-grounds” but then declares:

Not many whorts are picked nowadays; the local reasons given being the depredations of the black face sheep, and too frequent swaling. But another reason must be that the class of people who formerly made whortleberry picking an excuse for an annual break from routine can now go away on holiday themselves.

Le Messurier highlights two closely related issues that may account for the demise of harvestable bilberries. One is competing land usage (in the form of intensive grazing) and the other is social change. As discussed above, the social drivers for the bilberry industry were disappearing by the 1960s, as local

labourers found more lucrative work and the relative benefits of the harvest steadily fell. Gatherers such as Participant 10 confirm this:

Well, what happened as time went on, everybody forgot about picking bilberries because, you know, there was more money and the wages was better, and then they kind of, it was only the odd ones [who still picked].

One thread in the web governing the bilberry moor was severed.

Yet the economic focus of the commons changed as well, as the stakeholder's individual interests diverged. The bilberries were once pretty much open to all and thus "inherently public" (Rose 1986; Chapter Four). Whether they thrived or not, however, was dependent upon the overall management of the heath land on which they grew. With the agricultural changes of the last century, many previously successful commons systems broke down.

The management systems shifted from ensuring the robustness of the various resources of the common to optimizing their exploitation. Garret Hardin, in his famous article in *Science* in 1968, "The Tragedy of the Commons," proposed how communal pasture could be effectively destroyed when herders, acting rationally and in their own best interests, put as many cows on the commons as they could. He considered that overharvesting was an inevitable consequence unless an external authority imposed controls. Dartmoor provides a potential illustration of Hardin's thesis. Harvestable bilberries are for all intents and purposes gone from the areas where they were once abundant. The grass is overgrazed and the unchecked bracken is encroaching inexorably.

The reason for the demise of the bilberry resources of Dartmoor is not so succinctly explained, however. Overgrazing is merely a symptom of the

transformation in management that took place, which, in turn, derived from socio-economic changes amongst a complex mix of actors. There never was a penultimate external authority in a Coasian sense. Rather, there was a complex nexus that managed the commons in a variety of ways and for a variety of local outcomes. When this system broke down, there was nothing to fill the void. Only then did Hardin's thesis come into play. Thus, on Dartmoor, in the absence of active management, bilberry heath lands gradually disappeared under leggy heather, bracken and over-grazing. The gorse bushes encroached from below and bracken spread across the moor up to a "bracken line" of about 2200 feet. According to the Dartmoor Preservation Society, in 2008 bracken was still spreading by at least two percent a year across the Moor.

However, Chapter Four noted that Elinor Ostrom won the Nobel Prize in 2009 for work that demonstrated the limits of Hardin's thesis and a new perspective on the management of common resources. She showed that people, with sufficient motivation and left to their own devices, have designed reasonably sophisticated systems of governance to make sure that their common resources are not over-exploited. Many years of empirical research resulted in the path-breaking book *Governing the Commons* (1990), which revealed that users of common pool resources can both create and enforce rules that at least may limit excessive exploitation.

Ostrom's "long-enduring common pool resource institutions" were in evidence in the historical legal regimes surrounding foraging. She took the approach of examining exactly how commons were managed in reality. For

every Dartmoor, there were also places where common pool resources were still managed as part of a cooperative, inter-connected system. However, today foraging is governed by increasingly inflexible laws that conflict with the management systems allowing for permissive access for the taking of non-protected plant species. Owing to a lack of enforcement of many of these restrictive laws governing private foraging, systems akin to those prescribed by Ostrom can be found scattered throughout the U.K. in the form of local bespoke foraging management systems. Ostrom's approach involves studying the way that institutions actually deal with real common resource problems. With the passage of the Commons Act 2006¹³⁹, there is now an added incentive to understand how commons can be sustainably managed. This thesis undertook an intensive study of two sites currently undergoing a modern transformation: Moel Famau in North Wales and Bickerton Hill in Cheshire.

6.4.3 The Modern Guardians – A Collaborative Process of Access, Ownership and Resource Management on Moel Famau in North Wales

Participants 7a & b are park wardens and work upon Moel Famau in North Wales, an 800-hectare Country Park managed by the Denbighshire Countryside Service. They participate in the Heather and Hill Fort Project, and work with the community to encourage a more traditional management of the moorland. According to the narrators, this intensive management, designed to regenerate the heather and bilberries, can only be sustainable through collaboration with farmers and conservationists. The wardens have been involved in the management of the park for over ten years and during that time have been trying

¹³⁹ For a detailed explanation of how the Act facilitates commons management, refer to <http://www.defra.gov/rural/protected/commons/>.

to re-engage local farmers and educate the public in the restoration of the heath land. This has involved revisiting older ways of managing the moorlands and moving back towards a more traditional, and potentially more robust and sustainable, approach that engages the 150,000 to 200,000 people who visit each year, the farmers whose sheep graze on the moors, and the conservationists whose views have shaped moorland management over the past decades.

According to the wardens, returning to the old ways is “*very, very difficult, it takes lots of time.*” This change has had a profound impact, as one of the wardens exclaims in an emotionally charged comment:

I think it was the change; it's all to do with the change in agriculture, the change in the way that people manage the land. Years gone by they would have had agricultural labourers and gamekeepers on the moorland. Shepherds and the moors would have been much more heavily managed and they would have burnt annually on this rotation. But as the agriculture has changed and as numbers of people in agriculture has reduced, the moorlands have become this thing on the fringe of the farm, the fringe of agriculture. So people aren't managing it anymore, so there is now a generation gap where you have got the farmers farming today who might say, “oh I remember when we used to burn the moorland,” or “my dad used to burn the moorland, he used to go up and burn the moorland.”

I think that is what I was getting at with the lost art, is you have got, we are almost having to, careful with your words – I was going to say re-teach, but you don't have to re-teach - we almost have to remind people that this is the way they used to manage the moorland, why you did it back then. Let's try and do it again because it is the best way to do it.

Though the moorland is still a commons, fewer farmers today see the economic benefits of putting their sheep on the hills. The ‘social memory’ surrounding the benefits have receded (Halbwachs 1928; Connerton 1998; Misztal 2003; Nazarea 2006). And yet, with the increasing price of fertilizer and the lack of good grazing land, farmers have an interest in putting sheep back on

the hills. The farmers thus are starting to remember the value in contributing to moorland management. Conservationists are “*quite keen to see it done as well,*” so the wardens are “*working to try and rebuild those networks, and [...] sort of rebuild those skills, and equipment and techniques and try to get that sort of [collaborative] approach back again.*” To reconstruct a workable nexus, the sceptical farmers must be reminded of the benefits of the ‘old ways’. For instance, in the past, the shepherds would have a *cynefin*, which was a particular area of the moorland that the sheep over generations came to know:

The older ewes would teach the lambs you know and it would be, over a generation [as] a flock, they would get to know where they were supposed to be on the moorland, and you know your neighbour’s sheep would be the same, and the whole moorland was managed in that way. And then the farmers would work together on managing the moorland and shepherding and bringing them all down together and sorting them. There was a much more community approach to farming areas like that.

This approach disappeared in the 1960s and 70s, with the institutional drive to increase agricultural productivity through grants provided to ‘improve the moorland’. In this way, according to the wardens, 40% of the moorlands were lost along with the traditional management techniques. Because the moorlands were less managed, the heather, bilberry and grass was not as good and the sheep did not thrive. The farmers fenced off areas, doubled their stock and, for the most part, stayed on their farms. This led to a “*loss of skill, loss of motivation, loss of networks and all those kinds of things...*”

The farmers can remember their fathers doing certain things to manage the moor, like burning or collecting the bracken, but “*they haven’t got the equipment anymore.*”

So, in reminding the farmers of the benefits of a collaborative system, managers must themselves learn more about the elements of the defunct systems that worked so well. Importantly, there has been a corresponding loss of the notion that the grazers have to work together to manage the grazing land. The loss of these “*networks*” has meant that farming today is “*a much more isolated industry.*” So, even where there is an incentive to manage a bit of the moor, the farmers cannot do it on their own. As one of the wardens states, “*at the moment, the only people they can turn to are the wardens and the conservationists*”.

The other explains:

You get people say, ‘oh, I want to do some burning but I can’t do it on my own.’ Because they are the farm, you have got one person managing the farm, the son has gone to agricultural college, no labourers any more, they can’t pay for them and they contract somebody in to do work when it’s harvest time...

For the wardens, it is absolutely vital that the farmers become re-engaged and to do so, they must see the agricultural value of the moor to them. Today, retaining good grazing areas requires intensive management:

Where the heather is old and leggy, [...] the sheep will stay wherever they find a patch of grass or a patch of you know anything that is good to eat and they won’t really venture into the rest of the moorland because there is nothing for them. It’s, the heather, is difficult to move in, you know, move around in because it is three feet deep and there is nothing to eat anyway so by breaking up that structure and putting patches of burnt areas where you have young heather coming through, the sheep will move into the moorland, so you will see that they spread more widely across the moorland.

The land is common land and used by 30 or more farmers,

all farming in different ways, to different extents, and you know so we are looking to get a single agreement between all of those farmers to agree to a management plan.

As one of the wardens explains,

a farmer may be doing a really good job on his cynefin or his heft, but without all of the other farmers doing it as well, you have localized problems [...].

So you need to get a collaborative agreement as to,

what the moorland should look like in 10 years time, and stock it appropriately, and carry out the management over 10 years rather than over 1 day.

In practical terms, this requires “*creating younger growth so that there is a patchwork of young heather and old heather*”, with a mix of bilberry to replace the leggy 50 year old growths of heather. This is very palatable for the sheep – especially in the early winter - but is also a very important food source for the ground nesting birds and other key moorland species. To do this, they use a combination of burning and cutting the heather to encourage the new growth and to allow the bilberry to come through. They look to burn or cut between a 10th and 15th of the moorland every year, in order to get a patchwork of varying ages of growth (see photo 6.5).

Burning is “much more effective, you get a much better regeneration of the heather and you tend to get a much quicker and thorough flush of bilberry coming in after a burn.” Burns can only be done between October and March, but you do not get many days when it is not wet and windy, so this usually amounts to about “*half a dozen days*” a year to burn the whole area that needs covering. Heather burning can be “*quite risky*” however. It requires:

five or six people to go up and you know you need the right equipment, you need to know what you are doing, you need to have a plan.

The depth of the fire is also important as, “[y]ou don’t want to burn too deep into the soil [or] you don’t get anything coming back.”

Burning is “*very dramatic, can be quite exciting; we never want it to be too exciting!*” but last year the fire got out of control. As the warden retells it:

I mean it was very difficult. We were actually burning on quite a steep slope and it’s always difficult to burn on a slope because the fire likes to travel quite quickly up slopes, but we had targeted that areas for burning because the heather was very old and it had also been attacked by heather beetle, which is sort of, it has quite a dramatic effect on heather, so a good response to heather beetle really is to burn it off [as it] survives less successfully in younger heather.

The fire managed to get out of control, and whereas they had hoped to burn around 30 acres (the targeted 15th of the moorland), they ended up burning around 43. Says one of the wardens wryly, “*It was a really good burn.*” Soon thereafter “*a massive amount of bilberry*” began coming in, so “*we are actually quite pleased.*” You do not want to burn too much, however, or “*you just replace one single aged structure with another*”, so you will eventually get overgrazing since the sheep have no incentive to move from the large patch. So “*burning is good, but in small patches.*” A process of cutting in other patches accompanies the patchy burn. The advantage of cutting is that the heather does not regenerate as quickly from a cut as it does from a burn. The RSPB discovered that in areas they cut,

they get a 50-50 mix of bilberry and heather,” [and this gives you] “*a better variety and much more diverse vegetation structure in areas that have been cut, which is in the long term better [...] for the ground nesting birds.*



Photo 6.5 Moel Famau, North Wales (2009). “Cuts” have been made in the heather, allowing the bilberry to regenerate.

All of this should make the moor more attractive to the sheep, which is a primary aim. They are the best long-term managers and absolutely crucial to the long-term success of the conservation projects. With the patchwork of growth, the sheep are encouraged to spread across the moor. Thus, *“as the sheep nibble it, it sort of strengthens the growth and encourages it to carpet out”*.

Other management techniques are important to the health of the moor, such as the aerial spraying of bracken with herbicide. Farmers used to take the bracken for bedding, but now the bracken is spreading up the mountain. The wardens consider it to be a *“big enemy”*. Bracken overshadows the heather but bilberry can subsist for a while,

Eventually, you know, the bracken will [...] out compete everything and you will end up with very little under your stand of bracken. [Moreover], not only is it useless in terms of grazing, but it harbours ticks and you know it is actually an incentive to bring the sheep off if you have lots of bracken. It's just not worth putting your sheep anywhere near it.

The wardens have now been managing this moor for over 10 years and their long-term plans for regenerating the moor and re-engaging the communities who use it is well underway. They are involved in the Heather and Hill Fort Project¹⁴⁰, but are also collaborating with the Royal Society for the Protection of Birds (RSPB), landowners, the Countryside Commission for Wales (CCW), the Royal Commission, other conservation bodies and, of course, the local agricultural community. Visitors are also important stakeholders yet often view the area as a wilderness, unaware at how intensively managed it actually is. The wardens see part of their job as raising the awareness of this fact with the park users whilst also being sensitive to what the visitors may want themselves.

There is always going to be a tension between what the public wants and what other users and manager's desire, but the wardens so far have not seen any conflict between the visitors, conservationists and their agricultural stakeholders.

According to the wardens, they believe that a moor properly managed for the farmers and visitors will have conservation as a natural “*by-product.*” It is, “*a much more attractive habitat for black grouse, red grouse, merlin, all other sort of upland ground nesting birds*”.

¹⁴⁰ See, www.heatherandhillforts.co.uk. The Heather and Hill Forts Landscape Project, according to its literature, aims to conserve and maintain the heritage of the hill forts and heather moorland; to reconnect people to the uplands, to increase their enjoyment of its heritage and to lay the foundation for management, restoration and interpretation projects.

They bemoan the division between conservation and agriculture in social perceptions. They point out:

If you are studying countryside management and you want to be a conservationist they will teach you heath land management. If you want to be a farmer, they don't teach you heath land management and that's just indicative of you know of where we have arrived at [...], heather management is for conservationists.

For the visitors, the long transformational efforts of the wardens and the publicity afforded through the Heather and Hill Fort Project is helping to raise awareness amongst the general public, and get people “*to look closely at the heath land.*” They need the public to understand that it is, and always has been, a heavily managed environment. The bilberries, besides being food for the sheep and other creatures that inhabit the moor, are an important vehicle for engaging the public.

Moel Famau has a huge number of visitors and the bilberries provide a good way to explain the merits of active management as it is currently being practiced under the stewardship scheme. Thus, the wardens can explain that if they didn't cut and burn, “*the bilberry wouldn't be there*” and the black grouse would not be returning. So the wardens plan to continue encouraging foraging for bilberries, running picking days and sessions for making bilberry scoops. They even encourage the café to make promotional bilberry muffins. The wardens acknowledge that there may be trouble if they are too successful with this re-engagement:

I suppose you will get to a stage where potentially the agricultural community will say, 'Well, why are we managing this because all of our grazing is being picked by these foragers.'

And there may also be an issue about the disturbance of ground nesting birds, thus upsetting the RSPB. The wardens did not seem overly concerned about these issues, however, and push strongly against the idea that moorland management should be something seen as done for nature conservation rather than for farming. As one of the wardens states:

I think it would be a disaster if modern management was just [by] conservationists, because you know we can only do it for as long as the government is willing to fund it or whatever, [...] there really does need to be an economic reason to manage these moorlands, and keeping sheep there doing it because there is an economic benefit and sheep will do better if the farmers carry out this management, is really the only way to go.

The wardens of Moel Famau are attempting to transform the management of the moor and re-establish a collaborative system of local institutions, knowledge sharing, and collective memory. Their approach is a tacit acknowledgement of the failure of previous approaches to managing natural resources and an illustration of the need for an evolved, collaborative process of common-pool resource management as advanced by Ostrom. This is not to say the warden's approach will prove an unqualified success, however. This is not yet an evolved system with committed stakeholders, rather, the wardens are attempting to broker a collaborative approach using persuasion and incentives, backed up by dwindling stores of government and lottery funding.

6.4.4 *The Benevolent Landlord of Bickerton, Cheshire*

Whilst the wardens of Moel Famau are attempting to revive a collaborative system consisting of local farmers, conservationists, foragers, walkers and quasi-governmental bodies, the style of the National Trust warden of Bickerton Hill

evokes an alternate approach. By evolution and default, Participant 8 engineered a role similar to that of a benevolent landlord. As discussed in Chapter Four, the warden is an agent of the National Trust and as such has at his disposal a strong legal framework supporting his *rights of management*. Yet in the application of these rights, he has become a catalyst for a bespoke local system of rights of access, withdrawal and management.

Prior to the consolidation of ownership in the National Trust in 1992, the marginal land containing the bilberries operated as if it were part of an open common system. These common-pool and inherently public resources formed part of an interconnected economic and social system and an evolved, cooperative management allowed the benefits of access for the purposes of harvesting the bilberries. Whinberries, the local name for bilberries, grow in profusion upon the lowland heath above the villages of Bickerton and Brown Knowl in Cheshire. The residents of the surrounding villages once picked the berries every July and August as a source of supplemental nutrients and income. These were taken to Chester market and, according to the warden, sold and,

[T]he proceeds used to keep the women and children, winter shoes and clothing so it was obviously very important, a very important harvest for them to pick.

Ownership of the land was piecemeal and parts of the hill were used as an army training ground (1939-1975), leaving behind soil and fire damage as well as erosion. Eventually, the various owners and tenants also ceased grazing cattle and sheep, encouraging the return of birch saplings to the heath land. According

to Participant 8, “*it really wasn’t cared for.*” Much of the area eventually reverted to birch wood and the bilberry became increasingly scarce.



Photo 6.6 Bickerton Hill (July 2009). Bilberry bushes growing in profusion and laden with berries.

Participant 8 grew up in Wales, where he gathered whinberries as a boy. He was part of the process that led to the consolidation of the various sites surrounding Bickerton under the auspices of the National Trust. As a keen forager and historian as well a warden, he has a very interesting perspective on the issues surrounding access and the usage of the proceeds of the land. Though an agent of the National Trust, he is by dint of his personality at the centre of the web of relationships. He has known most of the residents for many years and takes a personal interest in recording their various histories. Funny and engaging, he nevertheless exudes a school masterly authority over his patch. It is clear that

he holds the managerial authority over the area, but also that he cherishes the history and nurtures the sense of place. Though he manifests a hint of territorial imperative, he is generous with his knowledge and clear in his mission.

Upon becoming warden, and in collaboration with Natural England (formerly English Nature) and the National Trust, the warden embarked on two 10-year stewardship plans (1992-2002; 2002-2012) to restore the heath around Bickerton. Given the uniqueness of this type of lowland heath in Cheshire, the National Trust made regeneration of the bilberry heath a priority. The southern side, one of the last sites of lowland heath in Cheshire, was designated a Site of Special Scientific Interest (SSSI)¹⁴¹ and is managed by the National Trust and the Cheshire Biodiversity Action Plan¹⁴² to ensure that the heath land is not overrun by birch trees and bracken. The birch trees had been colonizing the area since the 1930s and the whole hill was in danger of disappearing under the rapidly expanding tree cover, with the loss of one of the last lowland heath areas in Cheshire. Also lost along with the heath would be the flora and fauna that make the area so rich.

Unfortunately, the trees are very fecund and it was “*absolutely soul destroying and hard work*” to control their growth. Through an agreement with a local farmer, cattle were re-introduced in 1992, as they graze off the new seedlings as soon as they appear and the “*saplings die off eventually.*” They also graze the bilberry bushes, “*keeping them low and vigorous and bushy, and*

¹⁴¹ See, www.english-nature.org.uk/special/sss/.

¹⁴² See, Cheshire Region Biodiversity Partnership: Heath land Local Biodiversity Action Plan at www.cheshire-biodiversity.org.uk/habitat-heath-land.htm. The UK Biodiversity Action Plan identifies lowland heath and heather moorland as target habitats to be specifically protected.

[encouraging] more fruit and berries.” They “*poach up*” the ground as well, “*leaving bare spots for wasps and butterflies and basking for lizards and adders and different things.*” Employing cattle also limits the use of chemicals and chain saws, as: “*the cattle are doing the work for us, it’s absolutely brilliant.*” (See photo 6.7).



Photo 6.7 Cattle on Bickerton Hill, just below Maiden Castle (2009).

The first variety let loose upon the Hill were Welsh blacks, which were ideal, because “*they were bred for the job on those Welsh hills for centuries.*” But they were also expensive to finish off and so the farmer discontinued with them:

[He put] some sort of strange Holstein cross [but] as soon as they went on they just went down in condition and they didn’t do well at all. And they

didn't do the same job, they wouldn't be as hard foraging on heather and bilberry and birch as the Welsh blacks were.

The best would be about 25 Welsh blacks, Belted Galway or Highland cattle, but the “*the farmer won't put them on because of the low returns, isn't it?*” Recently neutered hill ponies have been added to the stock grazing the Hill. These hardy horses graze at a slightly different height from cattle and are also cheaper to maintain.

The stewardship plan has been a success, as “*every year the bilberries are getting better on the hill*”. Most of the felling is now complete and the Trust has ended up with around 50% heath and 50% woodland, which is “*ideal because you get a mix of everything that likes woodland*.” According to the warden, some of the very significant benefits of the carefully managed heath lie in the diversity of its flora and fauna:

The communities of heather, bilberry, the associated flora and fauna, butterflies, moths, reptiles. It's a very good reptile area for adders, common lizard and slow worms and of course nightjars can be seen up here. Merlin. It is really a thriving lovely different community.

There are also Green Hairstreak butterflies. The remaining woodland is home to “*fox, badger, polecat, stoats, weasel, grey squirrel, rabbits, field mice, wood mice, shrews, all that sort of thing*.”

The warden is not only the primary manager of the land; he is also a beneficiary of its proceeds. He gathers the berries, and his wife makes bilberry pies, bilberry muffins, bilberry jam, and “*all sorts of things*”. He picks at Bickerton using a “scoop” or “rake” that a regular visitor brought him back from Sweden (See photo 6.8). It used to take him a couple of hours to pick an ice-cream carton on berries

whereas now he can pick the same amount in “*about 10 minutes.*” The drawback is that “*you end up with bits of leaves in and bits of debris in*”. He declares with a grin that he has often thought of designing a device “*like a massive comb*” to fit on the front of his tractor bucket and “*really harvest a lot in one go!*”



Photo 6.8 A bilberry “scoop” or “rake” in action near Maiden Castle, Bickerton (July 2010).

Though the warden is clearly at the epicentre of all management and decision-making, there is a social nexus connecting the ‘landlord’ and the various stakeholders. A walk along the paths is guaranteed to encounter volunteers busily mending fences, cutting birch or furrowing drainage ditches. Neighbours can often be found at the start and end of the day sitting in the warden’s hut nestling a hot cup of tea or coffee and sharing stories. Researchers are to be

seen scurrying about investigating the complex archaeology, botany, history, geology etc. – and to be consulting the warden at regular intervals. The social nexus, though emphatically different from that of the past, is nevertheless thriving along with the bilberries.

This nexus has a policing effect of sorts as well. Thus, the warden is not overly concerned about commercial picking:

I would see them, and also other people would tell you, local walkers would tell you if they thought someone was overdoing things. They soon would tell you, believe me they would, yes.

However, the manifest difference in the social setting is evident in the tension involving a subset of the local community regarding the ongoing stewardship plans. Some of the community feel that their perceptions of the land and the benefits they enjoy from it have been ignored. The removal of the birch trees met with opposition from around a dozen local people, who formed a group known as “The Friends of Bickerton Hill.” They did not like the cutting of the trees and some protested vigorously that the National Trust had acted secretly in removing a part of the wood that was particularly valued by local walkers (See photo 6.9). They were particularly upset at what they considered to be a lack of consultation with local people or hill users (Coulbeck 2008). There followed a debate in the local paper over all of these issues, including whether there had actually been consultation over the specific plans ¹⁴³.

The landlord noted the debate, and indirectly engaged with it, but in the end ignored the sentiments of “The Friends” and carried on with the regeneration plans. This situation is perhaps evidence of an emerging trend: whilst the

¹⁴³ The Chester Chronicle, letters pages, 28 November 2008 through 23 January 2009.

management of the Hill is still collaborative, it is selectively so. The 'landlord' has set a management goal that is not locally derived, and not dependent upon local support for its success.



Photo 6.9 Birch tree felling at Maiden Castle 2010

Like the foragers who come from afar to gather wild foods, people today are willing to travel to find “a sense of place” and community. Our sense of place appears no longer to be connected to where we live or how we live. Rather, the modern ‘nexus,’ such as it exists, has evolved from very different drivers. The islands of individual purpose and meaning reflected in the symbolic significance of foraging are indicative of this changed state. The warden of Bickerton has tacitly accepted this, and his management style reflects the broad perspective of the National Trust, as evolved and adapted for his particular patch.

6.4.5 *The Contemporary Management of Bilberry Heath land Resources*

“Over the years I have come to understand the landscape in terms of human ecology, by which I mean that people, like every other animal, are organisms who live by exploiting and modifying the resources available within their particular habitat.”

- R. Purslow (2006:105).

The last decade has seen a revival in conservation efforts to save England’s remaining moorland and to sustain the bilberry heaths. This has revived the interest in bilberries as a foraged fruit, but is now raising issues of natural resource management as well. Bilberry picking has been the subject of hundreds of articles, books and web-based information¹⁴⁴ and has even featured on television programmes¹⁴⁵. Before the National Trust acquired places like the Bickerton Hills, there was little sense of ownership in the bilberries that grew there and, owing to isolation of the rural communities; access was effectively limited to the local population. However, the current ecological setting is not so straightforward.

Access analysis involves assessing the process of how access is gained, maintained and controlled (Ribot and Peluso 2003: 160). The patterns of access to the bilberries on Bickerton Hill and Moel Famau can be mapped as a nexus of knowledge and social relationships. Knowledge of the time to pick and the location for the best harvests was passed down from generation to generation and within the local community. The bilberry foraging sessions were very much social events, and even though this process was quite lucrative, there is little historical evidence of any control over access for picking the berries.

¹⁴⁴ See discussion and data, Chapter Seven.

¹⁴⁵ The One Show, 31 August 2008. The author served as a consultant to the show and was interviewed as a “local foraging expert.”

Access control is the ability to mediate others' access and is notable by its absence in this example (Ribot and Peluso: 158). The bilberries may not have been considered sufficiently valuable for the agents of the various owners or users to interfere in the practice, even though they clearly had a legal right to do so. Throughout most of these areas' histories, the landowners, farmers and villagers formed a nexus of knowledge and practice for the maintenance of the landscape. At Bickerton, the farmers put their cattle upon the heath, thus keeping the birch and heather under control. Likewise, upon Moel Famau, the sheep grazed a carefully managed moor. Locals across the heaths and moors of Britain chopped the bracken for use as bedding for animals and later for fertilizer, or set fire to it, thus limiting its spread. This nexus of mutually beneficial relationships between the landowners and those who lived and worked in the surrounding areas pertained for hundreds of years.

A flexible and efficient body of informal rules of access and usage governed this usufructory access to the bilberries, as those that managed the land took a favourable approach to maintaining and controlling access. A de facto right to pick bilberries at Bickerton existed up until the purchase of the land by the National Trust in 1983. The foragers, the bracken cutters and those supplementing their diets and incomes have lived close to the land upon which they picked. They had social relationships with the property owners, adjoining farmers and fellow pickers. Many of the gatherers, though they might not have perceived it themselves, were part of an inter-connected economic and social system embedded in a scaffold of social meaning.

This disintegrated with the increases in incomes, changed agricultural practices and the onset of the concept of the scientific management of natural resources. In the case of the Bickerton berries, the benefits of ill-defined rights diminished to the point where the returns from foraging were too low and the informal rules governing access were lost to memory. At Larkton, on the other side of the hill from Bickerton, increasing employment opportunities removed the need for supplemental income. On Moel Famau, the system eroded in waves agricultural legislation. With the demographic changes in the post-war period, many customary benefits from access were forgotten and the unwritten rules lost.

Today, there are concrete rights of access over select parts of the countryside but these rights are often distant from the customary benefits and social networks that marked them out originally. Who has access to the land around Moel Famau and Bickerton today differs from that of the past¹⁴⁶. Yet the local managers are keenly aware that visitors and the local population are partners and stakeholders in the regeneration. Thus, the ancient usufructory rights to the bilberries have persisted along with the berries even though the current social and ecological setting bears little resemblance to that of the past. This is now leading to wholly new and innovative approaches to land management.

Nevertheless, heath land and moorland management is expensive and requires the efforts of a large number of committed people. All of the participant

¹⁴⁶ On Bickerton Hill, Ostrom's definition of common property seems to apply: "members of a clearly demarked group have a legal right to exclude non-members of that group from using a resource". This distinction was first made in S. Ciriacy-Wantrup and R. Bishop (1975), "'Common Property' as a Concept in Natural Resource Policy, 15, Natural Resources Journal, 713-727.

wardens interviewed concur that, for management to be sustainable, we must learn from what worked in the past. For instance, firing the heath or moor - known as "swaling" on Dartmoor - works to reduce the bracken cover. Yet if it is done too often, it can be counter-productive, as the rhizomes of *pteridium aquilinum* are deeper than those of the heather and bilberry. R.G. Stapledon (1937) reveals that the swaling used to be done one year in every three to improve pasturage, but he appears to regard the bilberry as more of a pest than a benefit to the grazing livestock. On Dartmoor, the current effort uses financial incentives to encourage the commoners to control the spread of bracken. In 2007, all Dartmoor Commoner's Associations could claim up to £100/hectare for mechanical control or £50/hectare for spraying but volunteers were also encouraged in an effort to protect other areas, such as archaeological sites.

Once the heath and moor is restored, livestock can be used to help keep it in good condition. The warden at Bickerton prefers certain types of cattle and hill ponies; the wardens of Moel Famau, sheep. D. St. Leger-Gordon (1977) notes that pigs are excellent at controlling the bracken. Each solution is local, collaborative and adapted to specific conditions (Armitage and Berkes 2009; McLain and Lee 1996; Ostrom 1990). Yet, as demonstrated in the difficulties facing the National Trust's efforts to restore the heath on Bickerton, restoring and reviving a heath involves trade-offs. Nor, as the experience of the Moel Famau wardens indicates, is it easy to revive the traditional methods and networks necessary to maintain the moor once it has been restored. Moreover, success brings its own dangers in the form of greater pressure on the resources.

The bilberries are a *common-pool resource* valued by many (Ostrom and Gardner 1994): foragers; wardens; farmers and their livestock; conservationists and the wildlife they support. By definition, in harvesting common pool resources such as bilberries, one user is thus depriving another user of those units. This leads to the worry that, where the harvesting is left unchecked, this critical resource will be over-exploited. Hardin considered that overharvesting was an inevitable consequence unless an external authority imposed controls. Ostrom's Nobel prize-winning work demonstrated the limits of Hardin's thesis by showing that people will devise very sophisticated systems of governance to make sure that resources are not over-exploited. These systems of self-governance are based upon rules, responsibilities, and clear punishment. Ostrom (2009: 421) concludes:

When groups in the field are dependent upon the resources, can meet from time to time to discuss the problems they face, and can make their own agreements; they are more likely to self-organize to govern the commons.

In the case of Bickerton, the National Trust has, to some extent, created a new social identity that facilitates this governance process. Even where an individual visiting a site is not a member of the Trust, there is nevertheless a sense that the land belongs to the wider community, and is held "in trust" for them. This, according to Van Vugt (2009) provides a form of social identity and encourages those visiting to act responsibly and, perhaps, to forage sustainably. Moreover, the National Trust has a clear enforcement mechanism: it is actually against the byelaws of the National Trust to forage on Trust land. However, the wardens –and by extrapolation the Trust itself – generally ignores this provision

in favour of a more flexible, site-by-site approach. In essence, the National Trust has become a '*benevolent landlord*'; it has the right to exclude but elects not to do so. The issue remains as to what point the warden would feel compelled to restrict foraging. Participant 8 states in the narrative that he would not permit obvious commercial foraging, but does not yet have clear guidelines as to where any other permissive lines would be crossed.

The management of Moel Famau, by contrast, has attempted to revert to older, more traditional collaborative processes. Thus, foragers are permitted – even encouraged via warden led expeditions– to gather bilberries. The aim is partly educational and partly to encourage the forager to engage in the management process. However, there does not appear to be a corresponding “stick” as in the case of the National Trust’s Byelaws. Should the non-commercial foragers over step a perceived mark, would the wardens ban them from gathering? What practical enforcement mechanisms would they have at their disposal to do so? How would they propose to moderate access?

The issue may become more pertinent at both sites in the future, as observations over the past five years register a marked increase in the number of individuals foraging with bilberry “rakes” or “scoops”. From the data presented at the end of 6.3.5, the harvest rate for the rakes is significantly higher than for hand picking. This clearly has bearing upon the sustainability of collective harvests. The potential for a technological innovation to destabilize a cooperative system is discussed in Marceau and Myers (2006), who concur with Ostrom (1990: 241)

that “a rapid introduction of a ‘more efficient’ technology can trigger (...) the ‘tragedy of the commons’...”

6.5 CONCLUSION: THE SYMBOLIC MEANING OF BILBERRIES

In the autumn of generations past, the heath land of England would have yielded large harvests of berries, which would have been sold to fund the extra necessities of daily life for many at the ‘lower’ end of the socio-economic scale. The berries were firmly embedded in the social fabric of their lives and in their continual communal histories (Connerton 1998: 17). When this context changed, the benefits of the harvests were lost, along with the supporting social memory. The land and memories of the harvests are linked in the minds of the participants in this research, though this meaning has transformed through time from something more economic to an association with personal identity, sense of place and loss. With this evolution, the ‘social memory’ of heathland dynamics has dissipated, and with it the workable knowledge of how to conserve and maintain it (Olsson et al. 2004).

Attempts are now being made to transform management by acknowledging the failures of the past. As noted by Rackham (2003: xviii): “[c]onservation is really applied historical ecology.” The symbolic meaning for those managing the land now involves rediscovering the unravelled social nexus surrounding earlier practices. Though the bilberry heaths have until recently been in a poor state in many places, harvesters still value the berries – they are still considered ‘inherent public property’ by many and these individuals will be a part of any emergent nexus. Thus, managers are attempting to create a new

web of adaptive interdependence between those that farm the land, those that forage its resources and those entrusted with managing it. By brokering new, collaborative approaches suited to each locality, the hope is to promote sustainable usage of the resources. This involves establishing a nexus of mutually beneficial – and sustainable – relationships between landowners and other stakeholders and requires a flexible yet enforceable body of informal local rules governing access and usage.

CHAPTER SEVEN: THE PHENOMENON OF MODERN FORAGING

“For me, learning how to glean the wild larder has never been an exercise in survival. The shortages I mean to address are not the urgent ones of nutrition and shelter but the more widespread modern social famine in quality of life”.

-Hugh Fearnley-Whittingstall, *The Wild Food Ethos*¹⁴⁷

7.1 INTRODUCTION

For the foragers hunting today upon England’s managed heaths, under her forests and in her hedgerows, the quest for wild foods is no longer about socio-economic factors and rarely about tradition. Rather, it appears to reflect an emotional attempt at the very new form of sustenance highlighted by Fearnley-Whittingstall in the quote above: an atavistic need for an infusion of the wild. On our wild food quests, our evolved instincts feel the urgency of the autumn harvest as soon as the air grows cooler, the nights begin to draw in and late winter’s barren larder looms. We may still recall, in our moments of quiet reflection, that our food comes out of the soil or off of a shrub and not from a plastic-wrapped package with a label of origin affixed.

This research has documented the unravelling of a complex social and ecological nexus that once surrounded foraging. The resulting disconnection is so important that it merits further emphasis. We cannot isolate the symbolic meaning of the foraging process from the ecological or social environment, nor from the reflexive interpretations of the people who forage. The ‘nexus’ or ‘lifescape’ from which a continuously evolving meaning emerges is something

¹⁴⁷ www.rivercottage.net/FoodMatters/.../TheWildFoodEthos.aspx, accessed 1 December 2009, 6:10 a.m.

much more complex – and simultaneously much more basic – than at first may appear.

The final chapter of this thesis brings together the themes that have percolated through it: how the meaning of foraging has changed along with the behaviours, institutions and contexts within which it has occurred. Section 7.1 reviews the transition in the import of foraging from an activity once associated with subsistence to what is mostly a recreational activity for a select few individuals today. Section 7.2 is a reflexive and indulgent exposition of the modern meaning of foraging. The chapter – and the thesis - closes in 7.3 with a provocation to consider the creation of an Anthropogenic “foodscape.”

7.2 THE MEANING OF FORAGING: FROM SUBSISTENCE TO RECREATION

The changing relevance of foraging illustrates the social, economic and ecological transformation of English Society. Through an evaluation of the four research questions, three loose areas of transition emerge: first, from a core biological activity to one that supplements the produce of an increasingly agricultural society; next, from an activity offering supplementary nutrition toward one that supplements income; and third, from an economic supplement towards an activity with rapidly evolving psycho-social import.

Foraging ensured the survival of humans, with hunter-gatherers thriving throughout Britain up to c. 6000 years ago, until land-hungry farmers began to migrate to the British Isles (Clark 1954; Mellars 1998; Milner 2006; Hardy and Wickham Jones 2009). Within a few generations, the Mesolithic way of life had

almost completely disappeared (Wickham-Jones 2011). Our diets shifted from being predominantly formed of leaves, nuts, grasses and marine foods to cultivated cereals and protein from farmed animals (Schulting and Richards 2000). From this new way of living emerged the power to change the land around us – and forever altered our relationship with the food that we eat (Wickham-Jones 2011).

7.2.1 Changing Behaviours

People foraging in Britain today are not trying to maximize reproductive success or nutrition, but rather are attempting to optimize ill-defined personal utilities. Modern ‘purposeful foragers’ tenuously ally with our hunter-gathering ancestors; they are – at least to some extent - trying to optimize their take. The ‘patches’ they choose and the ‘constraints’ that they face influence the returns on their foraging activities. On the other hand, ‘opportunistic foragers’ are unique and unconstrained by identifiable biological imperatives. We cannot generalize what it is that they are trying to optimize: it is a very individual decision. Patch choice may be random and incidental and all of the potential constraints specific to the particular individual.

The demise of foraging as a biological and, later, economic process, is connected to our changing society, which left a mismatch between the evolved biological processes and the socio-ecology of modern Britain. This disconnect is referred to in several of the narratives in Chapter Six, and, according to recent research, may have directly impacted human stress processing ability (Lederbogen et al 2011). Numerous respondents to the Survey comment about how the gathering of wild foods is “therapeutic and relaxing” or helps them “to de-

stress.” Researchers need to continue to delve into the specific nature of these impacts and how a well-managed ‘foodscape’ might help to ameliorate the stresses of modern living as well as meet more of our nutritional needs (see Section 7.3).

7.2.2 Changing Institutions

An examination of the evolution of the institutions surrounding foraging extends our understanding of the changes wrought by the industrialization of agriculture. In its historical evolution, the legal system has not directly affected the social, economic or ecological systems surrounding foraging. Foraged foods remain ‘inherently public resources’ meaning that they are collective goods that are theoretically available to all for enjoyment. These resources have, for most of written British history, served as public resources in practice - if not always according to the letter of the law. The law surrounding foraging thus reflects – rather than affects – social, economic and ecological changes, both through particular pieces of legislation and in specific instances of enforcement.

Local, permissive systems for foraging have by and large endured throughout history, though their exact nature was subject to the social and political influences of the time. Foraging law therefore can serve as a very useful lens for observing and evaluating the nature of the changes occurring at particular points and places in history – and for assessing what the future may hold. For example, the Acts of Enclosure were a crucial political, legal and social watershed that helped to pave the way for the industrialization of agriculture. Such legislation, culminating in the Agricultural Act of 1947, reflected profound

changes in the social nexus, and by altering the complex system of rights and customs governing the commons, they thereby cemented the forager's changed relationship with the land.

As land accessible for foraging has become subsequently scarce, and concern for conservation has increased, the modern forager correspondingly faces greater legal strictures than ever before. Yet, so far, wild foods are still treated as 'inherently public goods' and are still gathered usually without fear of any legal sanction. The Wild Foods Survey provides support for this: most foragers do not seem to know or care about whether they have the right to be on land or the right to gather wild foods whilst there. The foragers nevertheless indicate, as per Ostrom's contention surrounding "long enduring common pool resources," that many do self-police through certain personal rules or cultural norms. This somewhat contradictory finding demands clarification, first for its potential impact upon the conservation policy frameworks, but also for the implications for the creation of future 'foodscapes' (See, 7.3).

7.2.3 Changes in Who Forages and What They Are Foraging For...

The Wild Foods Survey provided insights into 'modern foragers,' what wild foods they may be gathering, as well as their impressions of the environment surrounding their journeys into the countryside. These findings have implications for many of the areas covered in this thesis. The Wild Foods Survey provides evidence that the change identified through the application of OFT is more than just theoretical. Historically, the importance of foraging shifted away from subsistence toward supplementing meagre farming diets. It then took on a

more economic purpose for those at the lower end of the socio-economic spectrum, first as an 'industry' and later as supplementary income. Those foraging today do not do so out of any nutritional or economic necessity.

This transition reflects the changes occurring in society: working class women, children and sometimes men would forage for wild foods on a regular, seasonal basis well into the 1960s, yet today's often solitary forager is likely to be middle-aged, female and extremely well educated. She forages for a rather narrow selection of plants and does so often whilst out walking the dog. The profile of the respondents under 40 – as well as the current demographics of England - indicate that this age and gender bias may continue.

This Survey also confirms that there has been a general loss in knowledge of plant foods that can be harvested from the field or hedge, though there is a hint at a revival (see below, section 7.2). A few individuals knew a wide range of foods, but most of those claiming that they foraged were only gathering blackberries or sloes. Thus, in spite of increased interest in foraging, it remains little more than a very limited pastime for the vast majority of people.

Finally, the modern forager is likely to be driven as much by the physical and psychological benefits of the process as by the wild foods obtained. Those out gathering expressed a myriad of emotions, but many commented about the connection with the land or with nature. With growing economic uncertainty, the benefits of foraging may once again have a biological resonance, and at least one respondent noted how her foraged produce "padded out the weekly shopping."

7.2.4 The Changing Nexus

Foraging is a thus symbol manifesting where individual and collective life stories intersect with society and the landscape (Convery et al 2005). One particular foraged food – the bilberry – helped to evidence the transformation in the meaning of foraging. Over time, the symbolic meaning of the bilberry harvest has diminished from something essential through to something of marginal importance. An analysis of the lived-life experiences of berry pickers in Chapter Six shows a clear linkage between the individual's sense of self and the process of gathering. The harvesters interviewed for this thesis each imbue the process with their own sense of identity, belonging, meaning and purpose.

Eriksen et al (2011) maintain that any analysis of how people make sense of events must acknowledge “the osmotic nature of local knowledge: gained with time, experience and place-based attachment, through the development of social, human, and cultural capital within local communities.” Most of the stories concerning the bilberry harvest conveyed a meaning that was inseparable from the narrators' lived-life experiences. Thus, for relatively poor farm labourers and their families, the process provided money for the basics such as shoes and clothes. Later, the income was useful to younger people to purchase sweets or to pay for social events. For others, the entire process was part of a seasonal social event and may have involved families or groups of school friends. For all of them, the bilberries are a touchstone of a place-based way of life (Granovetter 1985; Carroll et al. 2003; Anderson 2004; Riley 2010). The decay of their own unique social nexus is very evident in the stories they relate.

The socio-economic driver to forage disappeared as changes in land usage and better employment opportunities led people away from moors and heath land. The harvest was once very lucrative – and the field tests detailed in Chapter Six indicate that it may still be an economically viable industry. But the social context has changed irrevocably and the industrialization of the food chain has eliminated markets for the produce. Even if bilberry harvesting may earn an income today, the local knowledge, mechanisms and motivations for its re-emergence do not appear to exist. The social memory has been lost.

A few of the harvesters revealed emotion that transcended the historical connection; at least one participant reflectively created a better time and place. The wardens, though their objective is less reflective or emotional, also see the past as a better country. They hope to recreate the utilitarian functions of the by-gone nexus to facilitate future management and conservation efforts. The unravelling of the social, economic and ecological relationships was, as explained in Chapter Six, a catastrophe for the heathland management, and creating one that functions as well will be difficult.

Previous systems of management worked because they were part of a complex, interrelated social and economic system. The interests of the people of the community were aligned and they had the time, the knowledge and the means with which to work together. This is not the situation today. There is little time, limited broad experience and place-based attachment is increasingly focused upon vague conceptions of recreation or beauty, which differ from person to person. There is little evidence of a communal 'memory' surrounding

foraging today – quite the opposite. From the Survey, it appears more often to be an individualistic pursuit, with knowledge increasingly garnered from books and the Internet, rather than social transmission across the generations (Connerton 1989).

Consequently, we cannot spontaneously reconnect with our food nor recreate a social nexus of mutually beneficial relationships. But we can learn from the past what might work for the future. From this thesis, we know that a flexible system and an efficient body of informal rules of access and usage has worked to maintain foraging opportunities. We also know that people consider wild foods to be ‘inherently public property’ and value them as such. Moreover, it is established that without active management, the plants – and any benefits derivable from them – can be lost. People can re-engage with the landscape and the food it provides, and many individuals and communities across Britain are doing so. Perhaps a new social identity is emerging – one that will contribute to the formation of a new, modern nexus?

7.2.5 The Modern Meaning of Foraging

On Tuesday, the 24th of August 2011- the last day of my field research - a cool breeze blowing in from the West tempered the heat from the peaty soil atop Bickerton Hill. The view from below Maiden Castle stretches unbroken across the Cheshire plain towards Moel Famau in Wales. Fat, purple berries hung from the branches of the bilberry bushes, though they were sparse compared to previous years owing to the shortage of rainfall early on in the growing season. The plants seem to be producing the berries serially rather than all at once,

making it hard to fill a basket, even while using the rake. Solitary bees, possibly *bombus monticola*, dart between the heather and bramble flowers, and flies and wasps harry the rotting berries and brambles. The drone of a tractor echoes from the valley below. I sit upon my slab of sandstone and observe people foraging amongst the bilberry bushes.

A few mid-week pickers punctuate the landscape, breaking the even surface of the heathland atop the hill. An older woman has positioned herself to the east of the ramparts near the information sign and remains in its vicinity for over an hour. She is wearing a straw sun hat and moves slowly in the lee of a slope, so that she does not have to bend far over to pick. She pulls berries methodically from the branches, dropping them into a rectangular plastic container. It is about a third full. This is all she carries. When I ask her later if she has far to go, she tells me that she is from Bulkeley (pronounced “Bewk-ly), which is “a fair walk away”. She walked here, but her husband will be waiting for her – and probably getting concerned - in the “easy” car park. She needs to gather enough berries for a pie, and it is taking a while this year.

Near the footpath that leads down the side of the hill, a grandmother, a daughter (or daughter-in-law?) and two children of pre-school age are harvesting. The little girl sits on the edge of the footpath, playing with a large life-like doll and dropping the occasional berry into a small white container, which may be the doll’s cup. The two women are ‘heads down’ a little ways off the path, gathering the berries into plastic bags, and pausing occasionally to talk. The eldest lad, getting bored, moves to the precipice and tosses berries into the abyss below.

Probably not wishing to push their luck with the children, the small group leaves abruptly, and so I do not learn their story.

A woman (40s?) is gathering at the far side of the heath, towards the gate and the black grouse nesting site, with a very energetic young black lab. She does not seem to have a central place, but rather her patch choice appears random, though she does not at any time pass the nesting site sign. The dog appears to be following scent trails of rabbits or a bird, possibly. In between snaps at flies and vertical leaps over bushes, he pauses to eat the berries. He eats a lot of berries in the time that I watch. The woman tells me later that she came out to gather the berries, which she plans to freeze – and to walk the dog. Apparently, he has always loved the berries, but will only eat them when they are perfectly ripe.

There is no one else on the hill on the 24th of August 2011, and I have noticed considerably less people gathering this year. Though there are still plenty of berries to pick, but with the heat and lack of rain, they will not last long. Those left un-gathered will slowly rot, eaten by the hill ponies, cattle, flies and the birds.

For those gathering the bilberries below Maiden Castle on that lovely summer's day, foraging remains a "recreational luxury" rather than a necessity. The harvesters do not need the nutrients the berries provide, nor is it easier to gather them here than in the supermarket. For these individuals, the benefits derived from the wild foods must involve something else. From the Survey results, we

know that many modern foragers value the exercise, the nutrition and the spiritual connection to the landscape. The process also supports strongly held ideals such as ‘freeganism,’ self-sufficiency and community values.

The growing popularity of foraging is evident in the number of television programmes devoted to wild foods and foraging (see Photo 7.1).



Photo 7.1 The Author with Lucy Siegel of BBC’s ‘The One Show,’ 4 August 2008.

There are also a burgeoning number of articles and books on foraging and wild foods (See fn. 2, 4). To test just how many, 1-gram data (word) was sourced from the Google database of historic n-grams and normalized for the total number of 1-grams and books published for each specific year (www.books.google.com/ngrams). The results (Figure 7, below) clearly indicate an increasing trend in use, even when we account for the alternative uses of the words over time (e.g. “forage” as used in agriculture; “foraging” as done by insects, birds or animals other than humans).

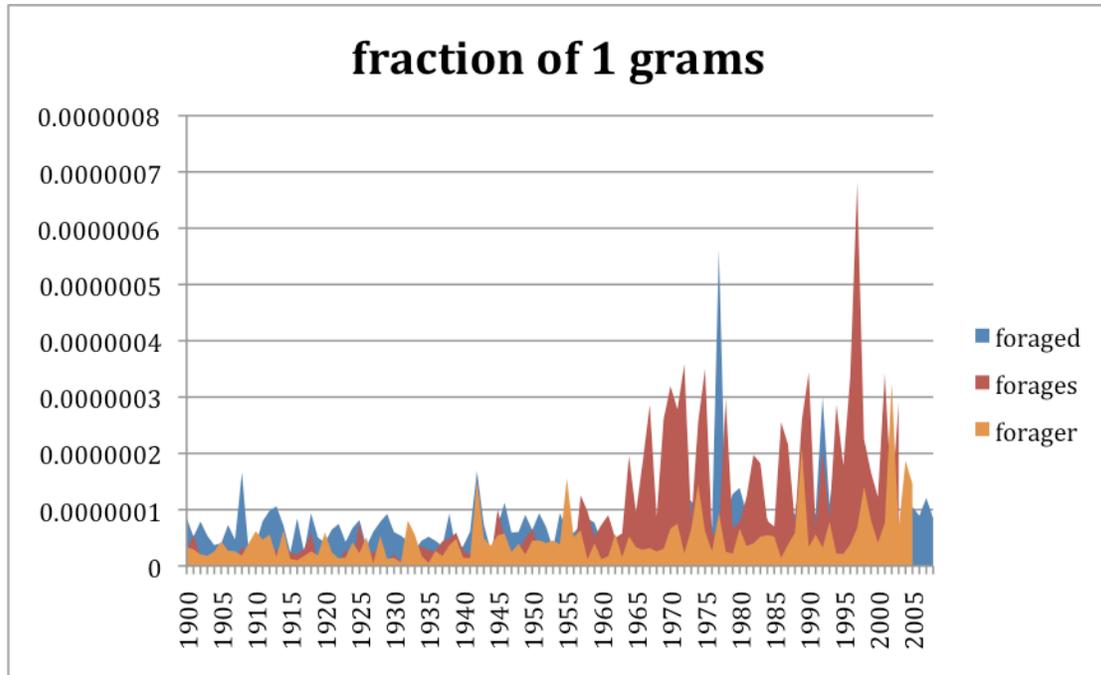


Figure 7: N-gram Evaluation of Trend in Use of Term 'Forag*' in Articles and Books

However, though the number of foragers is steadily increasing, this does not as yet resonate within the broader context in which most people live. In a time-constrained, convenience society, where hedges are surrounded by fences and laws, the luxurious 'touch of the wild' is often only found in high-end restaurants or carefully packaged by Waitrose. In a poignant division of labour, we need not actually touch a 'wild' food ourselves. Rather, we connect with it in the moment of eating, as the countryside is brought to the plate by professional foragers like Simon Rogan of L'Enclume, and made symbolically, but safely, real.

Nevertheless, the underlying sentiments, if harnessed by community action, could potentially serve as a driver for future 'foodscapes'. Michael Pollan (2008: 10) considers "the way we eat to be our most profound engagement with the natural world." The veteran modern forager Miles Irving (2009: 5) fervently

hopes that if we put people back in touch with plants, the old relationship we once had with our food will revive. He thinks that there can be a brand new foraging culture that suits our land and our ecology.

“The plants are still there, and we are still here. Put people back in touch with plants and the old relationship will revive.

We shall soon find a new way of harvesting, stewarding and using these plants, and, in so doing, create a brand-new foraging culture in our time and in our land.”

John Lewis-Stempel (2009) immersed himself Irving’s vision, spending a year subsisting solely on wild foods gathered from his 40-acre hill farm in Herefordshire. What emerges most strongly from his experience is the affect upon him as a person. He discovered, owing to consuming less sugar and carbohydrates, that as his diet improved, so too did his mental wellbeing (2009: 265). The process of gathering the food also helped: he ‘surrendered to Nature’ and found profound confidence in the fact that he could secure nourishment from his land. Richard Mabey (1972: 12) concurs, stating, “there is something akin to hunting here: the search, the gradually acquired wisdom about the seasons and the habitats, the satisfaction of having proved you can provide for yourself.”

Lewis-Stempel’s experience thus shows that it is still at least possible for someone living in modern England to live as a hunter-gatherer. But it also shows that foraging is not for the body alone. This lends hope that we can perhaps ameliorate some of the stresses of modern life by reconnecting with our landscapes and our food. Thus when Miles Irving proselytizes about a future forager wandering the rich fields and hedges of England for plants to add colour to the dinner plate, and to stock the winter larder, there is much more to this than

merely nourishment. This sentiment is echoed by the “urban forager” Alys Fowler (2011: 8),

Foraging, the act of looking for food, helps us to map the world around us, to give it meaning.”

Meaning is currently the key to socially embedding a food culture that suits our land and our ecology, but with our burgeoning global population and the threat of climate change, time is short – and so a radical suggestion is in order.



Illustration 7.2: Source: *Private Eye*, No. 1276, 26 Nov. – 9 Dec. 2010, p. 22.

7.3 THE FUTURE ‘FOODSCAPE’: GLEANING FROM THE LOCAL LARDER?

There are now over seven billion people on the planet, and global agriculture must adapt if we are to feed the estimated two billion new mouths predicted for 2030 (World Development Report 2009; Wirsenius et al. 2010). However, with climate change and the “dual burden” of obesity and malnutrition, merely producing more food is not sufficient. Whilst we cannot just dispense with a globalized food chain, we have to look at new ways of improving the existing system. The United Nations Commission on Sustainable Agriculture and Climate Change advocates, amongst other things, a sustainable public policy approach to reshaping food access and consumption (Beddington 2012). This final section of the thesis hopes to spread a ‘contagious ideal” of the local ‘foodscape’ that will connect us to the food we eat and the land upon which it grows.

7.3.1 An Anthropogenic Proposition: Gleaning from the Local Larder

The English landscape is ‘anthropogenic’ (Crutzen 2000, 2010). That is, we have shaped our existing ecosystem and we are also shaping the one that we will inhabit in the future. We were all once foragers, mapping the world by our stomachs, and perhaps we could begin to do so again? What if in future at least one facet of our economic system was subservient to the constraints of our natural systems? (Ophuls 2011).

Social and cultural factors were drivers behind the change from hunter-gathering to farming (Renfrew et al. 2009; Bowles 2011; Wickham-Jones 2011; Pagel 2012), and our cumulative cultural knowledge may be able to affect a change in the creation of the ‘anthropogenic ecosystems’ of the future. True, the physical, intellectual and social skills passed down to us from our foraging

ancestors are now employed very differently: for instance, in the aisles of supermarkets and on the pages of the Internet. However, the local larder – from the land within and surrounding our local communities - offers a common-sense opportunity for a different food future, one that reconnects us with the food that we consume. Today, we can forage in our own gardens, in the hedgerows and in the fields around us. In the future, we should also be able to forage for cultivated ‘wild’ food in parks, on ‘waste’ ground and even in parking lots. A truly ‘anthropogenic’ landscape would not only be shaped *by* us; it would be nurtured *for* us.

A move away from a completely industrialized food chain has a host of associated benefits. Agricultural biodiversity is an important consideration from not only an ecological perspective but also from one of food security, as the creation of the Global Crop Diversity Trust’s seed bank at Svalbard attests. (See also, Fowler and Mooney 1990). Conservation in vaults is by definition sterile: these plants need to be part of the process of life, to spread, to evolve and to adapt. They need us to nurture them, to eat them and to make them part of our landscape once again. Thus, the bilberries need people; without them the heather, bracken, wavy hair grass, and birch trees predominate, leaving but the pitiful pickings now found at many sites on Dartmoor.

Community spaces and protected rural areas present us with a new anthropogenic canvas, which, with a little thought and a bit of effort, could become local ‘foodscapes’. In 1983, Oliver Gilbert proposed a new way of thinking about the ‘brown field’ sites in our communities. Rather than view these

areas as wastelands, if we saw them as “urban commons” and associated them with commoners’ rights, then these unwanted spaces could become a shared environment (Gilbert 1983). Such shared environments can and increasingly are being managed as diverse and ecologically relevant landscapes from which to gather food (Fowler 2011). Thus, existing community orchards are cherished again, and new ones are being planted.¹⁴⁸ Even more significantly, communities are now approaching the idea holistically.

The English town of Todmorden provides a concrete example. In 2007, the townsfolk identified 130 unused public growing spaces around the town. They convinced the Calderdale Council to change the law governing local land and help to create a “community growing license” for vacant land. Thus, declares Fowler (2011: 53), “blueberries, raspberries and medicinal herbs now surround the NHS centre, the railway station grows culinary herbs, the fire station produces tomatoes and the police station had a huge crop of courgettes and sweetcorn last time I was there”. In 2010, the residents grew 815 kg of food and produced an edible map so that visitors can literally eat their way around the town.

Perhaps most importantly, the skills of growing and harvesting are being re-learned and almost forgotten knowledge shared between the generations. A new ‘social memory’ may grow along with the wild foods. Nazarea (2006: 325) explains why this is important:

Cultural memory embedded in food and place enables small-scale farmers and gardeners to resist the vortex of agricultural commercialization and

¹⁴⁸ For an orchard map of England, see: <http://www.England-in-particular.info/orchards/o-counties.html>.

mono-culture by continuing to nurture a wide variety of species and varieties and their home gardens and their fields, sustained by sensory recollections regarding the plants aesthetic appeal, culinary qualities, ritual significance, and connection to the past.

The ideal is not just for the countryside. Several cities have also begun to promote a more productive landscape. Birmingham Library recently substituted biologically boring pansies for edible cultivars (Alys Fowler, personal communication 2012). Visitors can now eat while they read! Nearby, at King's Heath Park, there is now a public fruit area, complete with benches. The City of Nottingham recently commissioned an artist and landscape architect to create a communal orchard as part of its revitalization of Sneinton Market¹⁴⁹. The orchard represents its "ongoing commitment to the production of urban food linked to community engagement in the city¹⁵⁰." Such local government efforts are becoming popular across the world – not least because they are cost effective ways for policy makers to address a variety of public issues¹⁵¹.

These small, but encouraging efforts could be painted onto an even much larger canvas. For example, the concept of 'continuous productive urban landscape,' (CPUL) which has emerged from movements in planning and architecture, envisions a sustainable future involving urban agriculture (Bohn and Viljoen 2010; Koc et al. 1999; Mougeot 2005; Redwood 2009; Van Veenhuizen 2006). The benefits of this approach include the preservation of biodiversity; improvement in the waste cycle and reducing energy usage. According to Bohn and Viljoen (2010: 154), "a city like London could produce about 30% of all fruit

¹⁴⁹ <http://www.orchardsneinton.co.uk>

¹⁵⁰ <http://www.orchardsneinton.co.uk>

¹⁵¹ <http://vancouver.ca/commsvcs/southeast/>; <http://news.bbc.co.uk/1/hi/uk/7482670.stm>

and vegetable requirements of its population from within the city boundary [...] by using currently abandoned, leftover space.”

In line with the CPUL strategy, numerous ‘bottom-up’ efforts are underway. For instance, the Greater London Council is has been debating changes to its planning system to encourage urban food production¹⁵². The Transition Towns movement has been working hard to encouraging sustainable living and ecological resilience within communities¹⁵³. A host of other organizations like Abundance, The London Orchard Project and Hackney Harvest have been mapping trees and collecting unwanted fruit and distributing it to volunteers, care homes and schools.

Edible landscapes are consistent with , however. As detailed in Chapter Six, efforts have been underway for several years to regenerate bilberry heath lands across England and Wales. The attempts being made to recreate a nexus that sustains the remaining bilberry heath lands may even make commercial ‘whinberry’ gathering viable once again. Thus for the county wardens of Moel Famau and for the National Trust, the caretaker of Bickerton, successful management now involves rediscovering the unravelled social nexus surrounding earlier practices, engineering an adaptive interdependence between those that manage the land, the farmers whose sheep, cattle and horses graze it, and the many visitors that come to gather the berries.

¹⁵² Greater London Authority (2010), <http://www.london.gov.uk/who-runs-london/the-london-assembly/publications/housing-planning/cultivating-capital-food-growing-and-planning-system-london> [accessed 18 March 2012].

¹⁵³ www.transitionnetwork.org.

Importantly, the ideal of the community 'foodscape' is for everyone – including those families for whom finding adequate food and nutrition is a daily battle. Fresh produce, particularly organic fruit and vegetables, is expensive and may be hard to find in low-income areas. As food prices rise, food deprivation increases (FAO 2008). Free, local food is more than just a 'feel-good' gesture – it is a resource that is greatly needed. Thus, for instance, British bilberries are valuable resources that can contribute provide nutrition at a local or regional level. Why buy expensive berries flown in from Chile, Spain or Poland – or even grown commercially in Devon – when the tasty, wild, organic berries grow on heaths all around the U.K.? The same question applies to sweet chestnuts imported from Spain – when ours lie on the ground uneaten every autumn; to apples imported from France - whilst our native varieties rot on roadways everywhere; to rocket which we rip out of supermarket packaging - when it is growing wild literally everywhere from early spring to early winter?

In summary, we can reconnect with our foraging past and with our existing landscapes, but we must do so in a future-proof way that can adjust to climate change, population pressures and even water shortages. They can also provide important habitats and food for wildlife and act as repositories for genetic diversity, especially for those varieties that are not commercially viable. The 'contagious ideal' of the 'foodscape' can go some way to addressing these concerns. The foodscape reconnects us, provides us with an instant lesson in sustainability and reminds us that we are all stewards of our ecosystems.

7.3.2 *Conclusion*

“When we try to pick out anything by itself, we find it is hitched to everything else in the Universe”.

- John Muir, *My First Summer in the Sierra*, 1911, p. 110.

In the future, we may be able to actively affect a social nexus that re-embeds us in the landscape of our food. Paul Crutzen’s view that mankind is now living in a new global environmental age – the Anthropocene - is evident in our British landscape, which is, almost without exception, man made. The changes wrought via our agricultural, industrial and communications revolutions are clearly evident topographically, yet also manifest in our economy and society and have affected us physically, mentally and socially. Foraging is an excellent lens for evaluating these myriad changes.

Gathering plants for food, a quintessential activity of early man, is no longer relevant to our survival. It is not even important to our economic and social system. It may hold meaning for our psychosocial wellbeing, but in ways that illustrate our disassociation from the past rather than our connection with it. In this way, foraging serves as a weighty symbol of the ongoing process of change: the unravelling ‘nexus’ threading together people, plants and the land. Echoing the John Muir quote above, we cannot ‘pick out’ an individual forager, nor the motivations and meanings of the process to them, from the social setting in which this process takes place. Nor can we separate the foraging process – even in this nascent Anthropocene – from the ecological environment from which it derives. They are all ‘hitched together’: the social processes, the economic environment, and the ecological setting – and we should remember this as we plan for our future.

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The Forestry Commission: www.forestry.gov.uk

Joint Nature Conservation Council: www.jncc.gov.uk

National Policing Improvement Agency Crime Mapper: www.police.co.uk/

SOURCES OF LEGISLATION AND REGULATION

www.uk-legislation.umso.gov.uk

www.opsi.gov.uk

www.openaccess.gov.uk

Databases for Information

Halsbury's Laws of England: available through www.lexisnexis.co.uk

Wolfram Alpha: www.wolframalpha.com

For a list of protected plant species: www.jncc.gov.uk

For further information concerning plants:

www.plantlife.org; www.pfaf.org; www.kew.org; www.bsbi.org.uk;

www.botany.com

For comprehensive information on specific plants:

www.fs.fed.us/database/feis/plants/shrub/vacmyr/all.html.

Or <http://www.ars-grin.gov/cgi-bin/duke/farmacy2.pl>

For information on Relative Value Sums of Money and Wages in history, see

<http://privatewww.essex.ac.uk/~alan/family/N-Money.html>.

British Labour Statistics: Historical Abstracts: 1886-1968, available from the University of Essex at

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APPENDICES

I MacArthur and Pianka (1966) Optimal Diet Model Comparison:

- The fitness of a forager increases linearly with the expected rate of caloric intake and the costs of handling and searching for food are equal. It is unlikely that anyone foraging today is doing so to garner his or her primary source of food¹⁵⁴. Moreover, the costs of handling and searching for food are definitely not equal for the modern forager. The “*purposeful forager*” will be time constrained as well as limited by what they can carry. Both types of forager may be gathering for later use, thus handling and processing times may have a bearing upon what type of plant is gathered and in what quantity. However, we could adapt the tenet to read: *the utility of a modern purposeful forager increases linearly with the expected rate of collection, and the costs of handling and searching for food are equal.* On the other hand, for the *opportunistic forager*, making any kind of useful statement is very difficult.
- Each food type has an average value and average handling time, both of which are known to the forager. This assumption has been relaxed to allow for variable recognition times and handling times (See, Pyke 1984: 531) and can still usefully be applied to the variability of knowledge and experience amongst modern foragers. However, this applies only to a very limited collection of foodstuffs now. The modern forager has a much-reduced range of commonly consumed wild produce, as is evident from the Survey results (See Chapter Five, section 5.4). Thus value becomes highly subjective. Nevertheless, for the purposeful forager, we could state: *The designated food type has an average value and average handling time, both of which are known to the forager.* On the other hand, for the opportunistic forager, the “value” of the randomly acquired food type is often specific to the individual.
- The forager identifies the food types and does not make mistakes in doing so. Again, owing to a diminished knowledge base and less practical experience amongst modern foragers compared to hunter-gatherers, the assumption needs qualification. Hughes (1979) relaxed the assumption to allow for the animals making mistakes in food selection. However, even if we relax the assumption and allow for mistakes, we must also consider that, with modern foragers, the fear of making a mistake may have a very significant impact upon the variety of foods that may be selected, even where identification is relatively straightforward. Clearly, the applicability of the model is further narrowed now that the pool of recognizable foraged foods is diminished (Chapter Five, 5.4).
- The forager decides whether or not to eat the food the instant he encounters it. This is still often true, particularly for an opportunistic forager who may eat harvested blackberries straight away. But both opportunistic and purposeful foragers may instead choose to pick and store the berries. Handling and storage cost assessments add additional

¹⁵⁴ Bar perhaps, Fergus Drennan, the “Wild Food Man”.

complexity to the model for the modern forager, both in terms of the subjective identification of individual costs and their quantification for purposes of the model. This valuation, moreover, may directly affect the evaluation of utility.

- Rates of encounter of different food types are constant and independent of each other and past history. Though this is merely an assumption for purposes of modelling, it is true that the rates of encounter clearly may depend upon past experience. That is, animals and people recall where the best, most fecund sources of food items have been in the past and may revisit these sites. The conventional model, once enumerated, can relax this assumption, but for the modern forager, it is probably hard to justify doing so because of the potentially varying utilities associated with different food types as well as the complex motivations surrounding each “encounter”.
- Dietary choices are constant. It is rare indeed that an individual out picking dandelions is doing so because he is hungry or nutrient deficient in some way. In fact, the forager, if he or she is actively foraging, is more than likely looking to supplement their future diet with a seasonal foodstuff. This choice, however, may have little to do with the foragers diet and have no direct bearing on the utility derived from the activity.
- There are no constraints on total food volume or the rate of food intake. This is true where the forager consumes a foodstuff where they find it. However, as noted above (d), where an item is gathered, the forager incurs handling, storage and transport costs that very well may constrain the volume and rate of picking, irrespective of the degree of satiation.

2 Pilot and Control Tests

Gathering bilberries is a fairly laborious process. Being only 22 to 120 c.m. high, the fruiting shrubs are low growing and may be concealed by other plants such as heather and bracken. Handmade “rakes” were used historically to gather in large quantities, particularly on Dartmoor and Exmoor and are becoming increasingly common with the commercial development of the high bush blueberry in the U.S.

However, as most modern non-commercial foragers do not use “rakes”, most of the experimental work below relies on hand picking. Hand picking can be difficult for many individuals, and not just because one may have to bend down for long periods of time to pick the berries. Other aspects of the process make it tiring: the distances between productive patches, variations in terrain and the fiddly size of the berries and their occasional concealment within dense growth. Concealment is not a particular problem on the heath land at the top of Bickerton Hill as the bushes form dense carpets across the entire area, but at Moel Famau, with abundance of old heather stands, it can be.

The gathering during these tests was done using a random walk in most instances, depending upon conditions, topography and level of fatigue. In Field Set One, Test 1 participants moved on when bored and sat down when they encountered particularly fecund bushes. As in the studies done by (Hill and Kaplan 1988), search and processing times were assessed using a stopwatch and the amounts acquired weighed using professional scales.

Participants: All participants read a Participant Information Sheet and signed a consent form. All were physically fit and neither classified as young or old at the time of the gathering sessions and all had gathered wild foods before. No participants received a reward for their efforts other than being able to keep the gathered produce, though a good-natured competition to pick more than others did occur at times.

Participant gender:

- 1 female
- 2 male
- 3 female
- 4 male
- 5 female
- 6 male
- 7 female

Bagging and Weighing: Identical bags weighing approximately 1 gram were used. The filled bags were hand weighed using a Salter scale. Most berries were picked cleanly but twigs, leaves, etc occasionally affected the recorded weights.

Permission to Conduct Tests:

Permission was obtained at all sites. A Participant Information Sheet was given to the wardens for the field tests and to the owners of the Fruit Farm for the control tests. Permission was not required for the individual foraging conducted for control test three.

One: Willington Fruit Farm, Cheshire - Raspberries

Date: June 28, 2007

Conditions: Very warm and sunny.

Methods: Randomized and set duration

Bag No./ Picker Id.	Duration (Start/Finish)	Weight (Grams)	Rate (Gram/minute)
1/4	17 min	232	13.65
2/1	17 min	512	30.12
3/2	3 min	240	80
4/1	3 min	165	55
5/2	3 min	245	81.7
6/2	3 min	285	95
7/2	3 min	230	76.7

Two: Willington Fruit Farm, Cheshire – Red Currants

Date: July 2, 2007

Conditions: Light Rain

Methods: Set duration

Bag No./ Picker Id.	Duration (Start/Finish)	Weight (Grams)	Rate (Gram/minute)
1/2	3 min	285	95
2/1	3 min	310	103
3/2	3 min	220	73
4/1	3 min	100	33
5/2	3 min	290	96.7
5/1	3 min	130	43.3

Field Test Set One: Bickerton Hill, Cheshire

Test 1

Date:

Locations: Bickerton Church, Plinth, Pool Lane

Conditions: Dry but cloudy and cool.

Methods: Randomized, picked until bored or picked over.

Bag No./ Picker Id.	Duration (Start/Finish)	Weight (Grams)	Rate (Gram/minute)	Details
1/1	12 min	65	5.4	Sparse growth
2/1	18 min	180	10	Very dense growth
3/1	17 min	200	11.8	Very dense growth
4/1	10 min	75	7.5	Varied growth
5/1	21 min	185	8.8	Dense growth, fat berries
6/1	11 min	75	6.8	Fatigue set in
7/1	13 min	75	5.8	Fatigue set in

Test 2

Date: 2 July 2007

Locations: Below Maiden Castle

Conditions: Moderate Rain

Methods: Randomized; picked until bored or picked over. Also varied with Picker 2 picking from one location and Picker 1 roving around from bush to bush.

Bag No./ Picker Id.	Duration (Start/Finish)	Weight (Grams)	Rate (Gram/minute)	Details
5/2	21 min	250	11.9	Settled location
3/2	11 min	125	11.4	Settled location
2/2	10 min	125	12.5	Settled location
7/1	15 min	150	10	Random walk
6/1	5 min	50	10	Random walk
1/1	untimed	75		

Test 3

Date: July 8, 2008

Locations: Below Maiden Castle, Bickerton, Cheshire

Conditions: Cool, windy and slightly wet. There appears to be more grass than last year and the bilberries are not yet at their peak.

Methods:

Bag No./ Picker Id.	Duration (Start/Finish)	Weight (Grams)	Rate (Gram/minute)
1/2	10 min	174	17.4
2/2	10 min	125	12.5
3/2	10.5 min	150	14.3
1/1	10 min	115	11.5
2/1	10 min	126	12.6
3/1	10.5	135	12.9

Test 4

Date: June 29, 2009

Locations: Cuckoo Rock and below Maiden Castle, Bickerton, Cheshire

Conditions: Very hot.

Methods:

Bag No./ Picker Id.	Duration (Start/Finish)	Weight (Grams)	Rate (Gram/minute)
1/1	5 min	50	10
1/2	5 min	75	15

Field Test Set Two: Moel Famau, East Wales

Test 1

Date: August 4, 2007

Locations: Bwlch Penbarras. First section on map with identified bilberries

Conditions: Dry, no wind but cold. Where sheep had access the bilberries were 3 to 6 inches and had very few fruits. Inside protected area (fenced off from sheep, they were 6 to 18 inches in height and had moderate fruiting. Large strips of heather have been removed in a mosaic fashion to allow for the regeneration of the bilberries and this appears to have been successful. The strip areas are bright green against the darker green of the extant heather

Methods: Set duration; varied picking methods.

Bag No./ Picker Id.	Duration (Start/Finish)	Weight (Grams)	Rate (Gram/minute)	Summary Rate
1/5	10	95	9.5	7.9
2/5	10	87.5	8.8	
3/5	10	55	5.5	
1/3	10	87.5	8.8	9.6
2/3	10	100	10	
3/3	10	100	10	
1/4	10	87.5	8.8	7.3
2/4	10	62.5	6.3	
3/4	10	70	7	
1/2	10	110	11	10.7
2/2	10	110	11	
3/2	10	100	10	
1/1	10	60	6	7.2
2/1	10	60	6	
3/1	10	95	9.5	

Test 2

Date: July 12, 2008

Locations: Bwlch Penbarras. To the north of the area in 2007 for reasons explained below.

Conditions: Burning is more effective than cutting for both heather and bilberry. For the heather, it cracks the seed and lead to the production of new plants. The bilberries positively thrive on the ash and increased sunlight resulting from the fires. Thus, the wardens attempted to burn off some of the old heather outside of the forestry. However, a sudden change in conditions led to a conflagration, which jumped the firebreak and led to the burning of 43 acres of heather and old bilberries. New growth of bilberries is very, very vigorous and much faster than coincident heather.

Bag No./ Picker Id.	Duration (Start/Finish)	Weight (Grams)	Rate (Gram/minute)	Summary Rate
1/5	5 min	25	5	6.7
2/5	5 min	49	9.8	
3/5	5 min	24	5.4	
1/3	5 min	26	5.2	5.6
2/3	5 min	28	5.6	
3/3	5 min	30	6	
1/4	5 min	48	9.6	9.8
2/4	5 min	49	9.8	
3/4	5 min	50	10	
1/2	5 min	47	9.4	9.7
2/2	5 min	50	10	
3/2	5 min	49	9.8	
1/1	5 min	48	9.6	9.9
2/1	5 min	51	10.2	
3/1	5 min	50	10	

Test 3

Date: July 6, 2009

Locations: Bwlch Penbarras. Same area as in 2008

Bag No./ Picker Id.	Duration (Start/Finish)	Weight (Grams)	Rate (Gram/minute)	Summary Rate
1/1	5 min	50 g	10	10 g/min
1/2	5 min	50 g	10	10 g/min

3 Revised Tests

[Revised] Field Test Set Three: Bickerton, Cheshire

Date: June 29, 2009

Locations: Cuckoo Rock and Maiden Castle

Conditions:

Bag No./ Picker Id.	Duration (Start/Finish)	Search Time	Weight (Grams)	Rate (Gram/minute)	Summary Rate
1/2	17 min	: 20	250 g	14.7	
2/2	6 min 40 sec	1 min	110 g	14.3	
3/2	4 min	1 min	67.5 g	16.9	
Summary	30 minutes	2min 20	427.5		14.25
4/2	8 min 30 sec	1 min	150 g	17.6	
5/2	7 min 10 sec	1 min	160 g	22.9	
6/2	8 min	1 min	162.5 g	20.3	
7/2	4 min	30 sec	105 g	26.3	
Summary	30 min	3 min 30	577.5		19.25
2/1	8 min	2 min	105 g	13	
3/1	5 min	3 min	50 g	10	
4/1	7 min	2 min	62.5 g	8.9	
5/1	4 min	N/a	50 g	12.5	
Summary	30 min	7 min	317.5 g		10.58
6/1	10 min	2 min	165 g	16.5	
7/1	6 min	2 min	75 g	10.7	
8/1	10 min	N/a	110 g	11	
Summary	30 min	4 min	350 g		11.6

[Revised] Field Test Set Three [SCOOP]: Bickerton, Cheshire

Date: June 29, 2009

Locations: Cuckoo Rock and Maiden Castle

Method: Using Bilberry Rake

Notes: Much faster collecting, but higher handling times owing to twigs, leaves, etc. that need clearing out.

Bag No./ Picker Id.	Duration (Start/Finish)	Search Time	Weight (Grams)	Rate (Gram/minute)	Summary Rate
1/1	2 min	0	100 g	50.0	50.0
1/4	3 min	0	200 g	66.0	
2/4	3 min	0	200 g	66.0	66.0

[Revised] Field Test Set Four: Moel Famau, East Wales

Date: July 6, 2009

Locations: The same areas as in 2008.

Conditions:

Bag No./ Picker Id.	Duration (Start/Finish)	Search Time	Weight (Grams)	Rate (Gram/minute)	Summary Rate
2/1	7	1 min	75	10.7	
3/1	14	1 min	167.5	12	
4/1	7	-	75	10.7	
Summary	30	2 min	317.5		10.6
5/1	5		50	10	
6/1	5		30	10	
 					
2/2	7	2 min	70	10	
3/2	6	2 min	70	11.6	
4/2	4	3 min	37	9.3	
5/2	6	-	50	8.3	
Summary	30	7 min	227		7.6
6/2	5		30	6	
7/2	5		30	6	

Field Test Set Five: Bickerton

Date: 1 August, 2010

Locations: Cuckoo Rock as in 2007, 2008, 2009

Conditions: Good. Bilberries in mid-development.

Methods: Intensive picking with the Rakes.

Bag No./ Picker Id.	Duration (Start/Finish)	Search Time	Weight (Grams)	Rate (Gram/minute)
1/1	6 hours	0	14.5 kg	40.3
1/2	4 hours	0	8.5 kg	35.4

4 THE WILD FOODS SURVEY

Data sheet used in Pilot Study

HAVE YOU EVER GATHERED WILD FOODS?

Yes	No	Anything Other than Blackberries, Sloes or Elderberries?

Questionnaire Details and Samples

The Pilot Postal Questionnaire (see appendix x) was distributed in several ways: through a ‘snowball technique’¹⁵⁵, during the Baseline Survey at the Eden Project or via organizations such as the Women’s Institute and the National Trust, who graciously distributed the packets to their members. Forty-eight individuals responded, using the self-addressed stamped envelopes provided.

Two additional sets of questionnaires were distributed electronically through the Eden Project, using the Survey facility *Survey Monkey*¹⁵⁶. One set targeted the Eden Project’s Staff whilst the other its Trust members or “Friends”. Twenty-four valid questionnaires were returned from the Staff and 29 from the Friends (See Table 2 below)¹⁵⁷.

The various sets of questionnaires are substantially similar though organized somewhat differently. The Eden Project Survey is the culmination of several years of learning and so is better organized and easier to analyze than the earlier Postal Survey version. There are a few other material differences: Postal Pilot –asks for the “highest level of educational attainment” whereas Eden Survey gives categories and permits respondents to tick all that apply. This differing approach meant that the results were not immediately comparable and required some adjustment when the results were combined. Several of the questions posed in the Postal Pilot were omitted from the Eden Survey as they were wholly ignored in the Pilot (or the responses were inconsistent or confused)¹⁵⁸.

On occasion, items are included that do not appear to fit with the edible plant life criteria. For instance, horse chestnuts are not edible for humans. However, where many of the respondents appended items to a category, the item was included in the analysis as the individuals concerned clearly considered themselves to be foraging. Thus enough people added “horse chestnuts” to the original postal survey that this item clearly had significance to them. Accordingly, these “popular” items were included in the Eden Project survey as well.

¹⁵⁵ Through self-selection, distribution via acquaintances and by finding people foraging, usually whilst picking blackberries or gathering sweet chestnuts in Delamere Forest, Cheshire or bilberries in Moel Famau, Wales, Bickerton, or on Dartmoor in Devon.

¹⁵⁶ www.surveymonkey.com

¹⁵⁷ There were 16 invalid responses (9 from the Eden Friends and 7 from the Eden Staff). The responses were deemed invalid if the responses only included basic personal data and nothing else.

¹⁵⁸ These included: “What has been your experience with the people who own or manage the land where you pick?” “Do you tend the land in any way when not harvesting?”; “Do you have any rules for things to do and not to do when picking?”

Information blurb put into the Friends of Eden Newsletter
WILD FOOD SURVEY

Jennifer Lane Lee is an economist at the University of Liverpool with a fascination with wild food. She's been working with the Eden Project since 2006 and is conducting a nationwide study of our foraging habits. If you have ever foraged we would love for you to input into her research.

Please complete the survey by following this link:

http://www.surveymonkey.com/s.aspx?sm=GvCwgBHCcftiby_2buLRD1g_3d_3d

The Questionnaires

1. Postal Survey: FIELD QUESTIONS: Gathering

This questionnaire is part of a research project being undertaken through the University of Liverpool. Please note that your participation is anonymous. If you have any questions, comments or concerns about this questionnaire or the research project, please contact Jennifer Lane Lee at Jennifer.Lee@liverpool.ac.uk. Thank you very much for participating!

*Instructions: Please answer the following questions as thoroughly as possible. Some of the following questions may not apply to you. Also, the questions only apply to items picked outside of your own garden. *Questions marked with a * are taken directly from the Interview Protocol for the Wild Harvest Report by the Forestry Commission. This has been done to enable a comparison with their findings.*

Information about you:

Gender:

Age:

Nationality:

Highest level of educational attainment:

Would you describe your main residence as urban or rural?

First three letters of your postcode:

Access Questions:

Do you know who owns the property where you pick?	
Do you have permission to gather on it?	
*What has your experience been like with people who own or manage the land where you pick?	
*Do you pick locally? If not, how far do you travel?	
Comments:	

Gathering Data:

Nuts	Tick if you have picked or collected in last: 5yrs 12 mo		What do you do with the nuts? E.g. freeze, bottle, pickle, sell, give away, eat immediately, etc	Other information
Pig Nut				
Sweet chestnut				
Horse Chestnut				
Beech Nuts				
Acorn				
Hazelnuts				
Cobnuts				
Walnuts				
Other:				

Weed/Salad plants	Tick if you have picked or collected in last: 5 yrs 12 mo		What do you do with the plant? E.g. freeze, bottle, pickle, sell, give away, eat immediately, etc	Other information:
Dandelion				
Garlic Mustard				
Stinging Nettles				
Hawthorn				
Moss				
Marsh Samphire				
Burdock				
Ramsons, Wild Garlic				
Good King Henry				
Lamb's Lettuce				
Rocket				
Wood Sorrell				
Common watercress				
Alexanders				
Fat Hen				
Horseradish				

Herb	Tick if you have picked or collected in last:		What do you do with the plant? E.g. freeze, bottle, pickle, sell, give away, eat immediately, etc	Other information
	5yrs	12 mo		
Wild Thyme				
Camomile				
Elderflowers				
Sweet Cicely				
Mints				
Fennel				
Primrose				
Red Valerian				
Sweet Violet				
Meadowsweet				
Other:				

Fungi	Tick here if you have picked or collected in last:		What do you do with the fungi? E.g. freeze, bottle, pickle, sell, give away, eat immediately, etc	Other information
	5 yrs	12 mo		
Morels				
St. George's Mushroom				
Chanterelles				
Chicken of the Woods				
Summer Truffles				
Ceps				
Field Mushrooms				
Horse Mushrooms				
Oyster Mushrooms				
Puffballs				
Hedgehog Fungus				
Wood Blewits				
Shaggy Inkcaps				
Other:				

Fruit	Tick if you have picked or collected in last:		What do you do with the fruit? E.g. freeze, bottle, pickle, sell, give away, eat immediately etc.	Other information E.g. how much do you usually pick?
	5 yrs	12 mo		
Blackberries				
Bilberries				
Damsons				
Sloes				
Rose Hips				
Wild Cherry				
Elderberries				
Crab Apples				
Loganberries				
Wild Raspberries				
Bullace				
Juniper berries				
Rowan berries				
Dewberries/Cloudberries				

Understanding of the Law:

Are you aware of the law concerning:	Y/N	Comments:
Common law of trespass		
“Room to Roam” Countryside Rights of Way Act 2000 (CROWA)		
Theft (as it applies to the taking of plant-life)		
Wildlife and Countryside Act 1981		
National Trust, Woodland Trust or Local Byelaws?		
Comments:		

Gathering Process:

	Comments:
*How do you know what to pick?	
*How do you know where to pick?	
<i>Do you tend to forage whilst doing something else (e.g. walking the dog) or do you go out expressly to gather (e.g. blackberries)?</i>	
When you pick, do you tend to pick as much as you can before moving on? Or do you leave some or a lot unpicked?	
*Do you have any rules for things to do and things not to do when picking?	
Do you “tend” the land in any way when not harvesting? Patrol the site, clear bracken or debris, notify the owners if there has been any damage?	
*Have you noticed any changes in your ability to find the things you pick? What kinds of changes?	
*Have the amounts that you pick changed through time? If so, why?	
*Are there any benefits that you get from gathering that you have not already mentioned?	
Do any of your friends or family forage? How do you think others view foragers?	
Comments:	

2. Eden Project Staff and Friends (Survey Monkey) Survey: Follow the link to:
http://www.surveymonkey.com/s.aspx?sm=GvCwgBHCcftibyi_2buLRD1g_3d_3d

