

Ecological Footprint Report

Prepared for:

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Summary report

4th World Ecological Design sustainability consultants carried out an Ecological Footprint analysis of Steward Community Woodland. Ecological Footprint is a widely recognised internationally adopted indicator of relative sustainability and is recognised by the UK Audit Commission¹⁰. Ecological Footprint is measured in Global Hectares (gha) see Appendix B for more details.

The study was based upon data from the combined impact of all activities, gathered between January 2008 and April 2008. Worse case scenarios were used to determine the data for the footprint analysis including incorporating impacts from work on the site.

The data was compiled and subjected to analysis using the Personal StepwiseTM software tool developed by Best foot Forward Ltd which is entirely compatible with the other published Ecological Footprint studies cited and thus allows comparisons to be drawn between the outcomes of the analysis and published data on the average ecological footprint of a typical citizen of Teignbridge District, the South West of England and that of an average citizen of the United Kingdom.

The analysis showed that the average Ecological Footprint of the residents of Steward Community Woodland over the period studied was 2.06 gha, 39% of the the Ecological Footprint of a typical UK individual. The equivalent Carbon Footprint was 3.75 tonnes 34% of the UK average at 10.92 tonnes¹.

The Steward Community Woodland 's Ecological Footprint is 39% that of the average UK citizen. The transport use & land management practices, and the interaction of activities that the community members practice and their modest low impact dwellings have reduced their footprint significantly from the average. If everyone else in the nation adopted a similar regime we could be meeting the targets of the Climate Change Bill² interim target of 26-32% reduction in carbon dioxide emissions by 2020 and 60% by 2050 and the UK contribution towards some of the recommendations of the Stern Report which recommended reducing global carbon emissions by 30% by 2020 and 60% by 2050. Instead the nation looks like it will miss its voluntary national 20% target for CO₂ by 2010 by about 10 percentage points¹⁸ and emissions are expected to rise further.

The draft Regional Spatial Strategy 2006 - 2026 for the South West sets the proposed spatial framework for the future development of the region over the period 2006 to 2026. It seeks to tackle the major challenges that the region faces over this period, including accommodating a substantial increase in population and a growing economy, tackling climate change and reducing the region's ecological footprint as defined by the consumption of natural resources and energy. The Dartmoor National Park management plan 2007 – 2012 states Government targets for reducing carbon emissions on Dartmoor, will be exceeded by 5% but gives no examples of where this has yet been achieved.

The community at Steward Community Woodland have chosen an unconventional route but have achieved a remarkably low environmental impact as measured by ecological footprint. The report concludes that the careful use of resources, transport, onsite renewable energy production, modest low impact dwellings and land management **practices adopted by the members of Steward Community Woodland represent a substantial step towards achieving both this local goal and the goal of reducing the region's Ecological Footprint.**

Introduction to Ecological Footprint

The ecological footprint is a powerful tool for measuring and communicating environmental impact and sustainable resource use. It expresses the relationship between consumption and availability of natural resources. Comparing the ecological footprint with the global availability of productive area gives an indicator of environmental sustainability, which can then be monitored over time to determine trends. If more bioproductive land and sea is required than is available, then it is likely that the rate of consumption is not sustainable (Chambers et al., 2000)³. In contrast, if everyone lived within their earthshare (see below), we would consume only as much as the planet is able to provide, which can be considered as sustainable. Within this report any reference to “footprint” will mean the ecological footprint.

As an indicator it is broadly comparable to Carbon Footprint which is measured in tonnes of carbon generated. Ecological Footprint analysis includes more parameters than Carbon Footprint and is a more concise way to examine resource use. To give comparison the results are also expressed below as a Carbon Footprint.

The Ecological Footprint analysis involves collecting data about a range of activities such as transport, energy use, materials and product consumption and waste produced. The impacts of these activities are converted into a common currency, global hectares (gha). Because the ecological footprint uses a common currency, a broad range of impacts can be aggregated to derive ecological footprints for products, individuals, processes, organisations, regions and countries. It is a ‘snapshot’ measure and is based on a time-specific data set.

Ecological Footprinting was introduced by Mathis Wackernagel and Bill Rees from the University of British Columbia, in their 1996 book “Our Ecological Footprint” and developed with Nicky Chambers and Craig Simmons of Best Foot Forward Ltd (BFF)⁴, Oxford in their 2000 book “Sharing Natures Interest” It has been developing as an idea and system for over ten years. Many researchers world wide are now contributing to its development. It is a widely used system of analysis utilized in 154 countries and 100 regions world wide as well as individuals and corporations.

The Ecological Footprint is adopted as an official indicator by many organisations such as; WWF International⁵, Welsh National Assembly⁶, & Bristol City Council⁷. Ecological Footprint has been recommended within; the European Common Indicators Programme⁸, European Parliament (STOA)⁹ and the Audit Commission indicators project¹⁰.

The South West Regional Development Agency supported Stepping Forward, the Ecological Footprint Analysis of the South West region. In the foreword to the report Juliet Williams the chairman of the SWRDA states *“By providing us for the first time with a clear understanding of the region’s resource and material flow, together with good quality data, it represents an important step towards a more sustainable South West”* Policy makers find it to be useful tool to determine the comparative benefits & harms from different approaches to addressing the needs of a population as it provides comparison of the impacts from widely differing activities by presenting them in a similar format as one indicator and thus can enable comparative judgements to be made.

It is a vertically integrated indicator and BFF analysis tools have been developed to provide comparable results at differing levels of application. For example, allowing an individual’s footprint to be compared with the results for a region or nation. This is most relative in relation to this report in that it allows comparison to be made between this

analysis and the results published in Stepping Forward – a resource flow and ecological footprint analysis of the South West of England, Best Foot Forward, and April 2005.

The earthshare is the average amount of global resources available per person. To calculate earthshare, the total available bioproductive land and sea area of the planet is divided equally among the current global population. It is estimated that the current earthshare is 1.8 gha⁵. A hectare is about the same as 1.3 football pitches. If one's ecological footprint meets or falls short of this earth share then this strong indication that it is more likely to be sustainable. If it exceeds it then it is likely that it is not sustainable.

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Introduction to this Ecological Footprint Analysis

This footprint analysis was carried out through a survey of Steward Community Woodland member's consumption of resources and production of wastes.

The data was gathered for over the period 21st Jan 2008 to 14th April 2008 via diaries and the collection of till receipts and utility bills. Different households and individuals gathered data over slightly differing lengths of time. Data was subsequently adjusted to represent an average week's impacts. The consumption and waste diaries were followed up by interviews with the subjects to pick up any atypical factors which, if not considered, might impact on the analysis, such as annual trips etc. Communal data was gathered for 11 weeks. This communal contribution was then added to each household's domestic records resulting in a dataset representing each individual's ownership of the impacts from all activities. A desk top study of the carbon audit and renewable energy reports published in 2007 was used to verify the plausibility of data where appropriate. This provided the raw data to estimate the consumption and waste levels generated by the community and to analyse it.

The data was compiled and subjected to analysis using the Personal Stepwise™ software tool developed by Best foot Forward Ltd which is entirely compatible with the other published footprint studies cited and thus allows comparisons to be drawn between the outcomes of this analysis and published data on the average UK footprint. For more details of the data gathering methodology, the datasets gathered and any assumptions made during the analysis see Appendix A.

Survey – The survey assessed the subject's consumption and waste levels. The subjects were given a briefing on the data required, a typical data capture sheet and methods of collecting. They then recorded their own consumption under a number of different component headings and sub headings over a period of up to 13 weeks. They recorded how far they travelled, how (car bus etc), what food, goods & services they consumed and how much waste they produced, recycled, landfilled or composted.

Interviews –The interviews allowed an assessment of longer term issues likely to effect the levels of consumption recorded during a limited time period of the study, such as seasonal variations in for example the amount of fuel required for heating, the amount of food grown for domestic consumption, occasional holiday flights, travel to visit family and friends further afield a number of times during the year, periodic disposal of larger waste items and items consumed as part of wider activities which should be allocated across a typical year and were not included in the individual's data gathering.

Desk top study – The desk top study allowed for the consumption of items purchased occasionally during a year to be included within the analysis as appropriate mitigating the effects of analysing a snap shot time period.

Boundaries to data capture – It is usual for footprint analysis to set a boundary around individual's domestic lives and allow the impacts of their working lives to be carried by the employer or by the business's customers within any individual analysis and picked up in regional or national analysis. Hence the impact directly allocated to the individual stops in the car park of the work place.

Similarly the share of wider public infrastructure & services impacts which might reasonably be thought to shared by all citizens equally are not all gathered within the data capture exercise. The analysis tool contains a mechanism for incorporating the per capita

impacts from broader national infrastructure and services which might not be recognised by an individual as “owned “ by them. Therefore the contribution these indirect items make to supporting an individual are reflected in the result of the analysis and an appropriate comparison can thus be made with other published figures.

However in an example such as this project the integrated nature of the activities on the site are so closely meshed with the subject’s lives that it was considered appropriate to consider the impacts of all activities on the site and to allocate the impacts from these to the community to produce a largest impact, worse case scenario. Thus the responsibility for the impacts created by living and working on the site during the study period will be fully represented within this analysis despite the convention being that the impacts attributable to the Affinity Woodland Workers Coop business should be owned by the consumers of the produce of that business.

Not all residents work entirely on the site throughout the year. Any impacts from resident’s impacts incurred whilst at any other places of work are not included in this study, as per standard footprint boundary methodology, though the impact of travelling to work is.

The analysis – The Personal Stepwise™ software tool uses a component based calculation. An estimate of footprint across the 5 land use categories (see Appendix B) is devised for each parameter or activity surveyed and these 5 results added, this is the component’s footprint. The footprint of each component is then added together to obtain the overall ecological footprint of the subject concerned. Thus this is a “bottom up” approach appropriate for examining individuals and small enterprises as opposed to the compound calculation method used to examine the footprint of a large business, a region or nation.

In compound calculation the analysis is carried out from the whole to the individual parts. Material and energy flows into and out of a given region are analysed the results allow an analysis of footprint across the same range of land use types. These are then added to obtain the footprint of the region. This regional footprint can then be divided by the population of the region to give an estimate of the per capita footprint of the average individual which will take into account factors such as the infrastructure used to support the population and the impacts of wider economic activity, employment etc.

The Teignbridge District footprint figure was extracted from published figures for the University of York’s REAP project. There is no appropriate published figure for the Dartmoor National Park area but given the overlapping geographic and political links with Teignbridge this was considered appropriate.

The three systems of analysis are comparable provided standardised methodology is adopted. The Stepwise™ tools provides this standard methodology and is subject to scrutiny and review. Thus a comparison can be made between the individual in this study and the district, regional & national average.

The detail of how the individual component parts of an individual’s consumption are analysed in an footprint analysis and how this can be compared to the carrying capacity of the planet is also briefly examined in Appendix B

Standards – This report has been prepared in compliance with the Ecological Footprint Standards (2006) set out by the Global Footprint network.

Limitations of Ecological Footprinting

A major benefit of footprint analysis is that activities that are not normally comparable can be accounted for by a single indicator and thereby compared. For example the impact of driving a petrol car 100km can be directly compared to that of growing 50 cows for consumption.

But, as not all activities are directly related to a land use, some parameters have to be estimated in another way (see energy below) and some others considered statistically insignificant are not accounted for at all. The analysis is by necessity an educated approximation. These approximations are discussed in more detail below.

There is a degree of sensitivity associated with the precise ecological footprint figures stated. However as all the Personal and Regional Stepwise™ & REAP analysis tools are derived using the same assumptions, based upon peer review the footprint results obtained can still be compared between individuals, regions and nations. The outcome represented as a relative percentage, and useful conclusions can be drawn from this to inform decisions.

Some assumptions have to be used to account for factors that have not been adequately recorded, or that are too complex to record easily. This analysis has attempted to address any of these issues by a combination of recording over a period of months the typical consumption presented by the community. The analysis of existing records held by the community for longer term trends in consumption and interviewing to take into account any longer term trends not revealed by the other two data capture methods.

Necessary simplification – Differences in technology and production practices can mean that the footprint of any one type of product may vary from manufacturer to manufacturer. footprint analysis allows for this by working on data from a range of published life cycle analysis and then making a judgement as to the most appropriate median value for the particular region in question.

In the case of this analysis most of these assumptions have been made by BFF in the production of the Stepwise software tool. So that the items consumed by the community can be collected together into similar groups of items. For example fresh vegetables produced in the UK or vegetables imported from elsewhere or items made from animal products would form three separate groups of products, which the previous published academic works on ecological footprinting tells us can be analysed based on a group assumption that for example the footprint of 1kg of potatoes is statistically very similar to 1kg of cabbage or 1kg of apples and therefore all the vegetables in this group can be combined into 3kg of fresh vegetables.

Likewise the food items consumed can be combined into three general groups, a weight of fresh unprocessed foods, a weight of those that derive from animal products and a weight of those that are processed and/or imported. Though the analysis performed by the software uses assumptions based on research to calculate the footprint of these three groups of items the output is statistically robust.

The data gathering exercise is potentially subject to errors from a number of sources; The data depends upon the accurate recording of data by the subjects, any omissions or estimating of quantities or errors in measuring devices will impact upon the outputs. It is estimated from previous experience of household recording that the margin of error is within +/- 15%. In this study it was possible to check raw data figures against previously reported

annual figures for some significant categories, such as energy use and travel. The higher figure was utilised if there was any difference. This provides increased confidence in both the integrity of the data and that the datasets analysed represent a high end estimate.

The Ecological Footprint is an ecological accounting tool. The Footprint's technical integrity is grounded in the fact that the Footprint assesses past consumption and bio capacity, based on actual production and consumption data. The Footprint does not attempt to predict future consumption or bio capacity, nor predict technological innovation. It just documents what is. To measure overall progress towards sustainable development in all its facets, the Ecological Footprint needs to be complemented by other measures.

Energy footprint Footprint analysis essentially accounts the use of the planet's renewable resources (its 'interest' rather than its 'capital'). Non-renewable resources are accounted for only by their impact on, or use of, renewable, bioproductive capacity. Apart from biomass power, energy generation is not readily connected to land use. Therefore the energy footprint is based on the neutralisation of the adverse effects of energy production by ecosystems. ie carbon is incorporated into new growth forests at a rate that can be determined. Simply put X kg of carbon = Y gha of forest growth. In the case of site based renewable energy the non renewable energy embodied in the generating plant is the principle component.

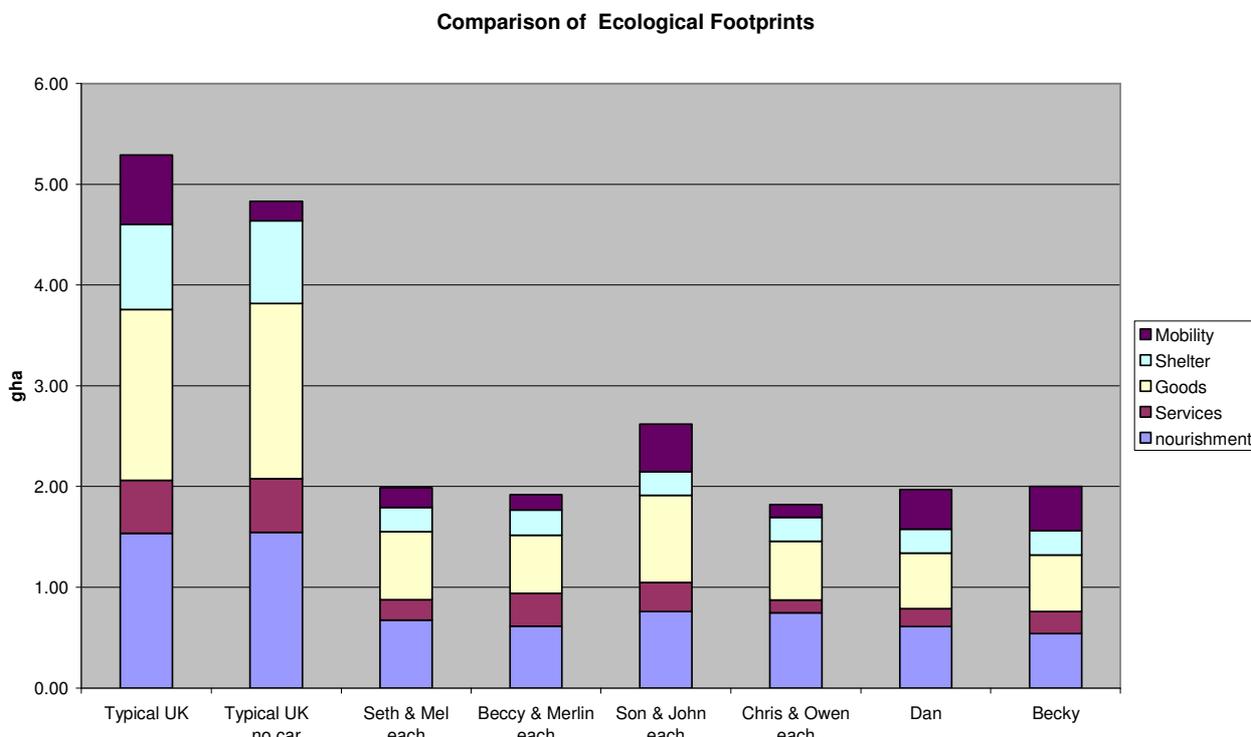
Pollution Cannot be readily accounted for. The main consequence of pollution may be the destruction or distortion of an ecosystem or the well being of its inhabitants, so that land can become less productive which globally would equate to less land to go around and therefore an increased impact from the same footprint. An example would be toxic fumes produced by incineration or industrial processes.

Low footprint does not always mean there is little environmental concern. For example it would be possible for items to be highly polluting in their production or on disposal but for this to not be fully taken into account by the footprint analysis.

Ecological risks Practices carrying a potentially high risk to the environment if things go wrong for example a serious incident at a nuclear power station resulting in widespread damage to the local ecology would not be reflected in the footprint of 1kwh of power generated by the same power station.

Steward Community Woodland Results

The following chart shows a comparison of the results from the analysis shown as Ecological Footprint and measured in global hectares (gha). The contributions from the 5 different lifestyle components examined are shown and the cumulative total is represented by the height of the columns.



The Ecological Footprint of a typical UK individual^{11 & 5} at 5.29 to 5.4 gha and the typical UK individual without a car at 4.83 gha is shown for comparison.

The average Ecological Footprint of the members of Steward Community Woodland over 3 months was 2.06 gha 39% of the UK average. The breakdown of the figures is recorded below.

Breakdown of Ecological Footprints by gha				
	UK typical	UK typical	UK typical	Steward Community Woodland
	%	gha	no car	gha
contribution from:			gha	Average
Nourishment	29	1.53	1.55	0.66
services	10	0.53	0.53	0.22
Goods	32	1.69	1.74	0.64
Shelter	16	0.85	0.82	0.24
Mobility	13	0.69	0.19	0.30
Total Footprint	5.29	5.29	4.83	2.06

The average carbon footprint of the community member's activities was 3.75 tonnes 34% of the UK average at 10.92 tonnes¹.

The amount of global resources available per person, known as Earthshare is estimated as 1.8 gha⁴. If everyone on the planet achieved an Ecological Footprint of 1.8 gha then there would be enough renewable resources available upon the planet to provide for all the resources humanity needs and to process wastes and absorb the excess carbon products being produced by our energy and transport needs.

The Steward Community Woodland member's Ecological Footprint is approximately 39% that of the average UK citizen. The lifestyle choices & management decisions that they have made has reduced their footprint significantly from the average. If everyone else in the nation adopted a similar regime we could be meeting the UK contribution towards some of the recommendations of the recent Stern Report which recommended reducing global carbon emissions by 30% by 2020 and 60% by 2050.

If everyone on the planet consumed a similar amount we would need 1.1 planets to support global resource consumption sustainably.

By comparison if everyone on the planet consumed like the current average UK citizen we would need 3 planets to support global resource consumption sustainably.

Steward Community Woodland & South West Regional average

A comparison of the members of Steward Community Woodland with the average resident of the South West as documented in Stepping Forward – a resource flow and ecological footprint analysis of the South West of England, shows the following.

Comparison of Steward Community Woodland & South West average Footprint

	Steward Wood average	Southwest average ¹²
	gha	gha
contribution from:		
Nourishment**	0.66	0.27
Goods**	0.64	2.14
services	0.22	0.46
Shelter	0.24	1.82
Mobility	0.30	0.87
Total Footprint	2.06	5.56

** In the stepping forward report the nourishment contribution related only to agriculture with impacts from food packaging, processing and distribution accounted for in the total for goods. Hence in the table above it is useful to examine the contribution from both components together to obtain a direct comparison.

Based upon these figures in 2001 the South West's Ecological Footprint was 5.56 gha per person. If everyone on the planet consumed a similar amount we would need 3 planets¹¹ to support global resource consumption sustainably.

The components where Steward Community Woodland member's lifestyle differs from the average citizen of the South west by order of impact are:

Shelter – The data for these components was derived based upon the modest low impact structures that the community is resident in. Despite being relatively poorly insulated dwellings by adopting a simple and space limited solution to shelter and by being energy efficient & utilising renewable sources of heat & electrical energy the residents of Steward Community Woodland have reduced their impact on the environment over the average per capita as measured by ecological footprint by 87%.

Note – construction accounts for 29% (0.54 gha) of the total impacts from shelter in the South West average, hence the low energy choices adopted by the community are as significant as the simple homes that they live in, i.e. reducing their need would be as significant in a more conventional dwelling.

Mobility – Despite the rural location, by consciously striving to reduce the amount of miles that they drive & fly and choosing to travel by train and bus for longer journeys where possible, the community has reduced their impact on the environment from the regional average as measured by ecological footprint by 66%. Part of the reduction is accounted for by the community use of bio fuels from locally derived waste vegetable oils which has a lower impact per km than fossil fuel diesel. Published estimates vary up to an 80% reduction in impacts over fossil fuels¹³. This analysis assumed only a 50% reduction in impacts to be conservative.

Note: If only the impact of motorised vehicle transport is examined and the carbon benefit of reclaimed bio fuel use is ignored and instead treated as fossil fuel diesel then the community's impact from driving per capita would be 0.28 gha compared to the average for the South West of 0.69 gha. Their impact from driving for domestic use and getting to work would still be 40% of the average.

Services – The community utilises telecommunications, the internet, local cafes, cultural facilities and other services approx half as much as the average for the South West.

Nourishment and Goods – The choices that the community make about their purchasing of foodstuffs, consumables and other day to day items have reduced the impact on the environment as measured by ecological footprint by 48%. This is largely due to the lower than average meat and dairy consumption and lower consumption of packaged goods generally and the greater utilisation of those items purchased. Evidence of this comes from the lower than average amounts of wastes leaving the site. The fresh locally produced, simply packaged produce consumed is also an important contribution. Some of the fresh vegetables consumed were produced on the site however this quantity was low due to the time of year when the survey was conducted.

Steward Community Woodland & the Teignbridge District average

The average resident of Teignbridge District has an ecological footprint slightly less than the regional average at 5.25 gha as documented in the REAP project results, published by the University of York, Stockholm Environment Institute¹⁴.

By comparison the residents of Steward Wood have an ecological footprint 39% of this.

A note on Carbon Footprint figures

The community published a carbon audit of its activities in 2007 which concluded that the carbon footprint of the community was 1.648 tonne per person.

This figure was derived utilising the concept of dynamic carbon, i.e. treating the burning of wood-fuel and the replanting/coppicing of woodland as a carbon neutral process within the confines of the site. The report argued that the overall effect of the community being resident within its own woodland was a net absorption of CO₂.

The CO₂ emissions from the burning of wood fuel were calculated as 2.37 tonne per capita. If this figure was included in addition to the 1.648 tonne then the total carbon footprint from the internal 2007 report was 4.01 tonne per capita.

In this Ecological Footprint report the effects of flows within a carbon cycle i.e. dynamic carbon have been effectively ignored, in line with footprint methodology, which is only interested in the amount of biologically productive area required to absorb the carbon produced not where it is located.

The carbon footprint of the community is calculated as 3.75 tonne per capita, in line with the 2007 report. The reduction is accounted for by the adoption of carbon saving strategies adopted by the community since they carried out their own study, such as making the commitment to only use bio fuels from local reclaimed sources in all vehicles.

Whilst it may be true to note that the carbon absorbed by the community's woodland may actually exceed the amount it generates this is not a factor that is considered when calculating the ecological footprint.

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<http://www.sei.se/reap/local.php>

Conclusions

The South West's Ecological Footprint has been estimated at 5.56 gha per person. If everyone on the planet consumed a similar amount we would need 3 planets¹⁰ to support global resource consumption sustainably.

Footprinting convention states that impacts from business activities should be owned by the consumers of the products of that business. However, in this analysis the additional impacts from the cooperative business activities on site were taken into account as if owned by the community members and **the combined impact of all activities currently occurring on site was an average ecological footprint of 2.05 gha per capita, a carbon footprint of 3.75 tonnes per capita.**

Steward Community Woodland member's average Ecological Footprint is approximately 39% that of the average UK citizen and 37% of the regional average. The energy & transport policies, modest low impact housing, land management practices, and the interaction of activities that the community practice has reduced their footprint significantly from the average. Their carbon footprint based on the study period was 3.75 tonnes 34% of the UK average at 10.92 tonnes¹.

If everyone else in the nation adopted a similar regime we could be meeting the UK contribution towards the Climate Change Bill² interim target of 26-32% reduction in carbon dioxide emissions by 2020 and 60% by 2050 and the UK contribution towards some of the recommendations of the recent Stern Report which recommended reducing global carbon emissions by 30% by 2020 and 60% by 2050. If everyone on the planet consumed a similar amount we would need 1.1 planets to support global resource consumption sustainably, compared to 3 planets which matching the current average UK citizen would require.

The G8 Climate Scorecards¹⁹ are intended to help policy makers and a wider public to identify the path leading to a global low carbon economy by tracking the progress of the major nations towards their carbon reduction goals. The 2008 edition ranks the United Kingdom as the nation that has achieved the most progress towards its carbon reduction targets. But points out that emission reductions have stalled since 2000 and the voluntary national 20% target for CO₂ by 2010 will be missed by about 10 percentage points and emissions are expected to rise further. The UK population as a whole appears to have very little concept of what changes are actually required to cut emissions to approach anywhere near the 2020 targets of 26-32%.

If there are no examples set of the behavioural changes required within the population to actually achieve the challenging climate change targets set by the Government for 2020 then the nation will ultimately fail to achieve these objectives.

The community at Steward Community Woodland have chosen an unconventional route but have achieved a remarkably low environmental impact as measured by ecological footprint. Their experiences are valuable for us all as they provide a base point demonstrating that self reported satisfying lifestyles approaching sustainability are possible in the UK context. The lessons learnt from this could provide valuable input to the design of more conventional settlements and community structures.

The draft Regional Spatial Strategy 2006 - 2026 for the South West¹⁵ sets the proposed spatial framework for the future development of the region over the period 2006 to 2026. It seeks to tackle the major challenges that the region faces over this period, including accommodating a substantial increase in population and a growing economy, tackling climate change and reducing the region's ecological footprint as defined by the consumption of natural resources and energy. The results of the examination in public published in Dec 07¹⁶ state "We support the objectives of reducing the region's ecological footprint and decoupling growth and carbon dioxide emissions"

The new Planning Policy Statement (PPS): Planning and Climate Change¹⁷ was published in late 2007, making clear that tackling climate change is central to what is expected of good planning.

The Dartmoor National Park Management Plan 2007 – 2012.¹⁸ gives as its Key Principles for Sustainability

1. *The principles of sustainability will lie at the heart of all decisions affecting Dartmoor; ensuring that all activities maximise the range of benefits provided – delivering people's social and economic well-being whilst working within environmental limits.*
2. *All decisions that affect Dartmoor will consider the implications of climate change – seeking to minimise the output of carbon dioxide (CO₂) and other greenhouse gases and make every effort to mitigate or adapt to the effects of climate change in ways that conserve and enhance Dartmoor's special qualities.*

It also states:

Ambition 17 Energy:

Dartmoor will be an exemplar of low energy consumption and the production of renewable energy from sources compatible with Dartmoor's special qualities.

Goals: E.G1: Government targets for reducing carbon emissions on Dartmoor, will be exceeded by 5%.

The careful use of resources, transport, onsite renewable energy production, low impact modest dwellings and land management **practices adopted by the members of Steward Community Woodland represent a substantial step towards achieving both this local goal and the goal of reducing the region's Ecological Footprint.**

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About the author

My name is William Knight. I hold a degree in Civil Engineering (BEng.Hons) from Oxford Brookes University. I am a member of the Association of Environment Conscious Building and the UK Permaculture Association. I have studied Ecological Design at Schumacher College, Dartington.

I am an Associate of Best Foot Forward Ltd - ecological footprint consultants and am trained in data collection and analysis for ecological footprinting studies. I have published a short book on ecological footprinting.

From 1983 until 1996 I worked for a variety of Private sector consultants and Public bodies as a civil/structural engineer involved in infrastructure design, construction and community development.

My particular field of interest is in the sustainability of human activities and I have researched issues relating to this for 16 years. I have run my own Ecological Design Consultancy service since 2002. I offer project management, design and appraisal services to reduce the ecological footprint of clients and raise awareness of issues relating to ecological sustainability. My clients include Local Authorities, an Urban Regeneration Company, Farmers, Universities, Architects, Private companies and individuals.