



GUILDFORD ENVIRONMENTAL FORUM

newsletter

[www.gefweb.org.uk](http://www.gefweb.org.uk)

JUNE – AUGUST 2014

In May the Forum organised two meetings with presentations by Commissioners from the now disbanded Sustainable Development Commission. At the first of these **BERNIE BULKIN** looked at **"SHALE GAS, WIND AND BIOMASS: REAL AND IMAGINARY ENVIRONMENTAL ISSUES"**.

We took copious notes of his presentation and used them to prepare this summary.

**BERNIE ANALYSED** the costs and benefits of a series of energy sources, but before doing so he set out the basic principles that he was working within. These were:

1. There is no one thing that will solve the climate problem, but there are many things that are needed. Similarly there is no one thing that will solve Britain's problem but a range of actions. Though there are many people who may advocate "single solutions", he feels that they are inherently suspect.
2. The reason that we are going to change is not depletion – we are not running out of coal, gas or oil soon, although we could eventually. We will change because we need to stop burning fossil fuels soon due to the damage that they are doing. Over the last two centuries the human

race has enjoyed a "fossil fuel subsidy". As we have exploited coal, bitumen and other fossil fuels, so we have needed to spend less time on gathering wood etc, and this has given us time to invest in new things. Now, however, we need to use this subsidy to get to the next stage of efficient energy production.

3. Reducing demand is crucial, and this is about technological as well as behavioural changes. There are massive things that we can do that are "free" (i.e. have less than a year pay-back time). There are already some heroic measures being undertaken on energy efficiency.
4. For any technology the cost is very important, and we cannot ignore this. We need to get costs and subsidies down, and to expand take-up of technology.

**Cuadrilla's exploratory fracking site at Balcombe in West Sussex**



5. All the things that we do to obtain energy have consequences. Possibly solar is the least difficult (although a transition from silicon to cadmium as the key material would be problematic). But that is at the extreme of low consequences, whilst coal is at the other extreme – it fails every test of sustainability, and last year coal burning increased worldwide. We cannot rule out a technology because of one bad consequence. Bernie prefers the tests of sustainable development: a) living within environmental limits, b) a strong, healthy and just society, c) a good economy, d) good governance, and e) the precautionary principle or good science.

People who cite one failure by a technology to say “rule this out” and do not look at how to solve the problem are as misguided as those who advocate one pet solution.

So, if we are looking at the consequences of a technology we must ask some questions. Are they real? Are they solvable (with current technology)? Is the past bad record a result of an inherent problem or is it bad practice that is the problem? For example, deaths in the oil industry do happen, but these could be avoided by means of good production practice.

The key energy sources discussed by Bernie Bulkin were: Wind (especially on shore), shale gas and biomass (for electricity).

## WIND

The big issues are: i) landscape, ii) bird deaths, iii) noise, iv) intermittency/variability, and v) cost. (It is argued by critics that wind power generation needs fossil fuel to support it so there is no point in having wind generation.)

- i) There are landscape changes for everything that we do, but it is widespread for wind. But is it harmful? We had thousands of windmills in the past, but it is a matter of judgement not science. The majority are not opposed to wind farms (unless the farms are proposed close to where they live). Where they have been built and the people have been consulted, once they exist they are accepted. There are rarely objections to expanding existing sites. In the UK we have used the well-tried French approach of “bribing communities”. New technology means that the turbines can be closer to the ground. This means that they have less impact and are still efficient. Focusing of the wind is possible and may increase the output by two times.
- ii) Birds. Some are killed. The biggest problem is with raptors. They hover and dive on their prey and may hit the turbine on the way down. This has been a problem in the SW of the USA (California etc). Another problem, which is the main one in the UK, is with migratory birds. Now, though, we are able to understand more about

individual sites and how to reduce bird kills (the RSPB does not now generally object). It is, however, crucial to design properly, but the bird deaths nationally from this cause are probably in the low thousands annually (compared to the 40 to 50 million birds killed annually by cats).

- iii) Noise. The turbines need to be kept away from residential areas. The key issue is whether there are other noise sources around. The Langford windfarm is just off of the A1. If you stop near it, for example as close as 100 feet away, its noise is completely overwhelmed by the noise of the A1. You would however hear it if it were in a National Park. There are regulations governing noise, and if they are followed it is OK.
- iv) Variability and the need for fossil fuels. Wind is predictable and it can be balanced on a hourly basis. Windfarms can be balanced with other sites. Interconnection is one answer, for example with France and Benelux. Possibly more could be done with France with its nuclear capacity, and there have been proposals for a cable through the Channel Tunnel. There might be more connection with Ireland and also with Denmark. With these links both the wind and



www.telegraph.co.uk

the demand are out of synchronisation, because of geography and time. There is the possibility of using the massive Norwegian excess of hydro-power and also geothermal from Iceland. There is the question of who pays, as there would be high levels of investment needed. All this is interconnection with low carbon electricity (not fossil fuel). There is scope for 10 to 20 Gw of interconnected electricity that would be a back-up.

- v) As to cost, the cost of onshore wind is close to the cost of gas (currently gas prices are high), and wind costs are decreasing (they are similar if you allow for the carbon cost). The cost of off-shore wind generation would need to reduce by a third to be similar to gas. Currently there is a “cost-hump” to start with, but zero marginal costs thereafter.

## SHALE GAS

Gas is better than coal (half the CO<sub>2</sub> per kWh) and there are fewer deaths in extraction compared to mining, especially with North Sea gas (gas from Russia is not getting this far). It is more resilient than coal as most coal comes from Russia and South Africa (some also comes from the USA).

Gas is not as good as renewables however, because there still is CO<sub>2</sub> produced, and “gas versus nuclear” is a discussion that society needs to have.

### Problems:

- a) **Earthquakes.** When fracking you will get earthquakes (level 3 on Richter Scale), as you also do when building dams. The pressure on the rocks leads to stress release. This does not feel like a serious problem, and it is small in the US.
- b) **Contamination of water supply** (e.g. with gas, referring to the Gasland films 1 and 2). This is a case of poor practice, with leaks into water. Good practice would solve this and good practice is essential, but this depends on enforcement which we are unlikely to get with a government anxious to allow its use.

**Methane leaks** – if only 3% of the gas leaks then gas has no net benefit over coal in terms of greenhouse effect because the climate change effect of methane is 20 times that of CO<sub>2</sub>. So it requires exceptionally good practice. In the US there has been a lot of methane leakage. This can be reduced but it requires extra cost, and strong surveillance to ensure that leakage does not happen.

**Chemicals** – there is a complex soup used to promote the frack. Some suggest that this is a tiny amount and that it has been reduced by 95%, but that reduction is from a very high level. It is a complex mix that is pumped down and back up with reflow water. Sewage treatment works are not equipped to deal with it. If the practice of industry were followed one would expect the producers to treat it themselves. If it went to a sewage treatment works it would kill the micro-organisms. In the US it is trucked away and the water is re-injected into suitable geological strata. We cannot do this here, so have to re-process and recycle – companies are not yet committed to this route.

The US cost reductions are achieved by cheaper approaches to the problems (i.e. deep well injection). Cuadrilla has not adopted a solution yet. Large quantities of water and sand are involved, so thousands of trucks of water and sand need trucking through populated areas. Every well would require 10 Mgal. of water for production – a substantial amount. Possibly the most difficult aspect in the exploratory wells is that the reflow water brings

up rocks and dirt in which there is a high level of **radioactive materials** (200 times the background level). This is what happens in the North Sea (where they also have a radon problem). In the North Sea they dump the water. But on land it is a more serious problem. This has been found in the US. A report by the Royal Academy of Engineers argues that there is a need to establish base-line levels of background radiation before we start exploring. Some of the problems are being hyped, but there are real difficulties.

## BIOMASS FOR ELECTRICITY

Biomass is considered less contentious where it is used for heating, but there is also a question of biomass being used in transport. Here however, Bernie was concentrating on electricity generation from biomass. Large quantities of biomass electricity are being generated (both Drax and Eggborough power stations may be converted to biomass). What will they burn? This will not be waste wood, but whole trees grown elsewhere, pelleted and shipped. This sounds bad. Trees sequester CO<sub>2</sub> and if the wood goes to furniture or construction it is tied up for a long time. If it is burned as a fuel it is in a cycle and probably close to carbon neutral as it is taken up by other trees. There is the question of CCS (carbon capture and storage) and we could bury the carbon under the North Sea.

Most of the wood used is grown in managed woodland. What has happened in the last decade and especially the last five to six years has been a great increase in recycling, reducing the need for wood for paper. Paper mills have closed globally. Secondly there is the 2008 recession with drops in US homebuilding (their houses have a high wood content), and this was followed by the World, with also a big drop in the sale of new white goods and so less cardboard being used to pack them. Woodland owners have too much wood, so they look for other outlets, especially outlets in the UK (in the US the gas and coal lobbies prevent this). Growers have offered good terms for their wood for fuel.

We need a thought experiment: a tree grows for 50 years and is felled and is followed by replanting. This incurs a carbon deficit that it will take 50 years to repay – that is the way some represent it. But one could say woodland at the million hectare scale has a carbon stock, with felling and planting every year. There are trees of all ages. The carbon stock is constant or increasing, so there is no carbon deficit.

**In conclusion Bernie said that society needs to establish a consensus on the principles – government has not tried. Local change can be made by establishing “good associations” for some policies. We need to appreciate that it is a case of concentrated harm versus distributed good, not a case of who shouts the loudest.**

# The Local Plan

Raymond Smith

The next stage in the production of the Guildford Local Plan is expected in July, with the publication of the "Draft Local Plan" for a 12 week consultation. A draft version of the formal "Draft" is currently being considered by councillors in Guildford.

THE MOST CONTROVERSIAL ASPECT is the proposal to more than double the required rate of home building compared to the current 2003 Plan, from 652 to 322. From this flow many other problems, including removal of some areas from the Green Belt, for immediate building or for further building in the next Plan, the creation of a new 2,500-home mini-town on Wisley airfield, and the potential for overcrowding and congestion in some parts of the town.

This figure of 652 is supposed to be based on the "objectively assessed housing need". This is produced by outside consultants. The process by which this figure was reached has been widely criticised on a variety of grounds (the Forum's response is summarised opposite). At the GBC Scrutiny Committee meeting on 15th May, most members were unhappy with the figure but many seemed to be prepared to put up with it. However, when the issue was put to the vote, there was overwhelming support for asking the Planning Department to have the consultants look again, and consider whether this figure is justified.

One of the key points that has been made repeatedly by the leadership in GBC is that the area has not been building as many homes

as required by the 2003 Plan and that there is a shortage of future supply even by those 2003 standards. This is seen as putting the Borough at risk of inappropriate applications being allowed by the Planning Inspectorate on appeal from the applicants. In essence this shortfall is due to insufficient acceptable applications having been made since the banking crash of 2008.

It is strange that whilst many in the business community say that houses are sold rapidly as soon as they come on the market, nevertheless developers are not willing to build to meet the targets devised in 2003 let alone what is supposed to be the real demand now. Is it that they are holding back in the hope of yet further rises in house prices, or are they fearful that the current price levels are extremely fragile and anything that risks meeting the demand could lead to a fall in prices? Either way, there is a risk that this very high target number will almost guarantee that the five-year housing target will not be met in the future and so we will have the "planning by appeal" that GBC has continually said that it is trying to avoid.

We will give more information in our September newsletter.

## Organic imports

The amount of UK farmland certified as organic fell in 2012 by 7.7%, says the Soil Association, whereas global organic production is increasing. This means that the rising number of UK shoppers wishing to buy organic produce will have to rely largely on imported food.

(Source: The Times, 13 Mar '14)

## FACTS & FIGURES

### Britain's solar capital!

Woking is home to nearly 10% of Britain's electricity-generating solar panels.

(Source: The Lightbox, Woking)

### Vocal variety

Most songbirds have a repertoire of a few song types, while the nightingale famously alternates between more than 200. However, the brown thrasher, a North American bird related to the mockingbirds, boasts a repertoire of more than 1,500 different songs.

(Source: BBC Wildlife, May '13)

### Winning trees

A 1,000-year-old field elm (*Ulmus minor*) in Bulgaria has won the title of European Tree of the Year. It is a well-known landmark in the town of Sliven, and features on the town's coat of arms. The title of Tallest Conifer in Europe went to a Douglas fir (*Pseudotsuga menziesii*) in a glen near Inverness standing at 66.4m (218ft) tall.

(Source: The Garden, May '14)

## Fuel not landfill

Haggis maker Macsween no longer uses landfill sites. It has achieved its aim of being 100% landfill-free by turning unrecyclable waste into refuse-derived fuel.

(Source: Waitrose Weekend, 8 May '14)

## FACTS & FIGURES

### Transport - 1

Railway journeys are set to double over the next 30 years.

(Source: Network Rail)

### Transport - 2

Fifty-five per cent of car journeys are under 5 miles.

(Source: Department for Transport)

### Air miles

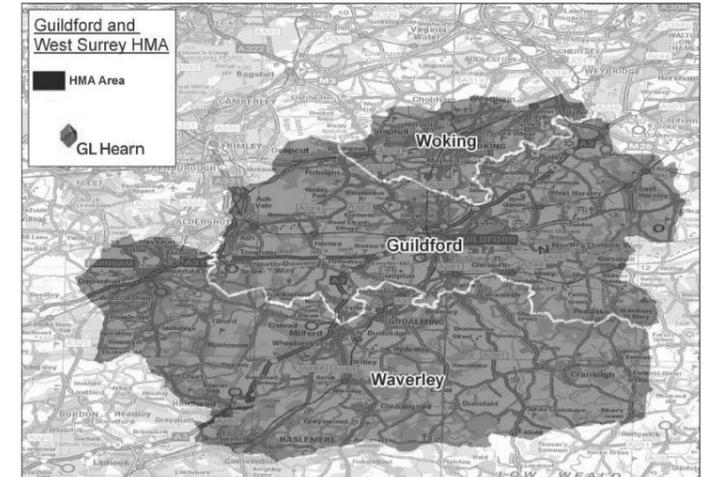
Bumblebees are able to locate feeding sites at least 3.5km from their nest. Flying at about 25kph, they can visit these over and over throughout the day, ferrying supplies back to the colony. In proportion to the bumblebee's size, this is equivalent to a human circumnavigating the globe 10 times to go to the shops, and then repeating it to go home - several times a day.

(Source: BBC Wildlife, July '13)

### Violence

Unlike humans, animals do not seek revenge on other animals, nor do they annihilate groups in acts of genocide, nor do they kill for sheer pleasure . . . In the 20th century alone, humans killed more than 200 million of their own species.

(Source: Ex-psychoanalyst Jeffrey Masson)



## Guildford & West Surrey Strategic Housing Market Assessment

Guildford Borough Council Draft Report, January 2014

Comments by Raymond Smith, Chair of Guildford Environmental Forum

UNFORTUNATELY THE FORUM has not had the resources to provide a comprehensive (and referenced) review of this document. The following is therefore a somewhat cursory set of reflections on the Draft Report and the thinking behind it

Fundamentally economic projections based on the last ten years are misleading. This period saw the retail boom of the early 21st century, with growth that was caused partly by economic conditions that are not likely to be repeated, especially the industrial boom of China (and other East Asian economies). Building this level of growth into the projections for future population growth will therefore precipitate a spiral of construction that attracts people to the area, and that is clearly beyond the area's immediate needs, in a positive feedback process.

A similar problem arises with the expectation that the rate of migration to the area will be continued. This increase can be substantially attributed to a short term influx of migrants from the EU. Whilst this migration is ongoing after the initial rapid increase, it is fluid with a high turnover of individuals, and is potentially highly responsive to economic changes. By definition migrants are mobile and are likely to relocate to opportunities elsewhere in the UK or indeed Europe, so providing housing on the basis of a growing future demand will also lead to excessive new building.

Clearly the internally generated increase in population implies new dwelling construction at a far lower level than the figures that are being considered, and new building should be more in line with this figure. The report gives a home building rate of 204 dwellings annually, based on Net-Nil Migration. It is not appropriate

to reject this option out of hand as is done in the report. Future net inward migration would be due to ongoing economic growth. In an area where building growth is for very good reasons, constrained, it is not appropriate to aim at economic growth. It is also obvious that for net immigration to occur in one area there must be net emigration occurring in other areas, (for example the North of England).

Incidentally, on a technical point, the assumption behind "analysis of National Insurance Number Registrations from overseas nationals, which have averaged around 2,000 persons per annum since 2005/6" is questionable. Many of these registrations may be from students who come from outside the UK to work in the area only during their academic vacations.

The use of projections needs to be checked against the reality. For example it must be clarified why a building rate that only just met the past projections for approximately the last decade, did not lead to significantly greater over-crowding (according to the report) in spite of high migration levels in the early part of this century.

Nothing in the preceding paragraphs should be interpreted as indicating hostility to migrants, whether from within or beyond the UK, either individually or collectively. Nor does it constitute a comment on national or European level policies on migration.

It appears from the report that there is a relatively greater increase in the need for smaller housing. The report seems to assume that the response to this would be in increasing the total number of dwellings built. However, a more appropriate response may be a requirement that all developments include smaller dwellings at a proportion greater than in the current housing stock.



# THE VANISHING ISLAND

THE HOG'S BACK AND GUILDFORD HAVE A TIMELESS AND SHARED FOUNDATION

Part 2 Text and photographs by Forum member Michael Tanner

ON THE NORTHERN FLANK of the Hog's Back, at Wanborough, the Cistercian monks forcibly evacuated from their Abbey at Waverley (see Part 1) had their Great Barn – the best surviving example of a medieval barn in southern England – and used it to store the golden harvests which supplied the Abbey. Their fields still stretch towards Guildford across a beautiful two miles of unadulterated green slope, though the hedges have gone. They also rebuilt and took over the little Saxon church of St. Bartholomew next to the Barn.

Supposedly, they had no idea of the treasure buried centuries before them in the same area: gold and silver coins of the Atrebathe Celts who came up from the coast and occupied this area well before the Romans. One of these Romans or Romanised Gauls built his own villa within shouting distance of where Watts Gallery now stands on the southern flank. Almost due south-west, on the other side of the Hog's Back, hardly two miles from St. Bartholomew's (by bridle path), is the even better preserved and bigger church of St. Nicholas at Compton, dating substantially from pre-Conquest times.

How all these activities grew out of the area's natural shape, substance and orientation becomes clearer if you abandon your car or bicycle and proceed at a wandering pace (or simply stand still) on any of the multitude of footpaths and bridlepaths which weave their secret miles up, down and along the north and south slopes of the Hog's Back, sometimes coming to a frustrating halt where the A31 carriageway has tyrannically barred the way.

## Puttenham – a fine area for hop-growing



## Local activities old and new

Talking to some of the locals may well provide morsels of information which have evaded print: *"The chap who came there first [pointing] dug sand out just down there, with his own hands, holding a spade, and actually carted it to a firm, in Tongham, I do believe, who used it to coat the paper old ladies put on the bottom of their budgie cages."* This was before the great extractors moved in to capitalise on the abundant deposits of Folkestone Sand in the Seale area, to be followed by dumper trucks to fill in the resulting lake-size holes with waste or leave them to become lakes in reality.

Other more gentle, though vital, needs which the locality was able to satisfy were: hops for flavouring beer; rabbits for meat and skins (note the many 'Warrens'); wode for dye; butcher's broom to scrub butcher's tables; hazel for wattle fences; spindle shrubs for spindles; alders for charcoal; ironstone for walls (sometimes even for iron), and earliest of all, good flint for knappers. Curious fact, that – all those pieces of flint littering the ploughed slopes after spring rains result from sponges which grew on the layers of chalk at the bottom of that ancient sea (sponges contain silica).

A few perambulations along the southern flank reveal just how much may be owed by people to the benign influence of their surroundings: there are plenty of examples of this cultural influence, this inspiration which local people evidently derive from the locality or recognise as being able to nourish their spirit, if they settle here. Nowadays, these range over many enterprises: the raising of rare breeds (such as Welsh Badger Face sheep) at Puttenham's Clear Barn Farm; the production of sparkling wines at Greyfriars' Vineyard; the Equine Veterinary Clinic nearby; the functioning Hop Yard to the west of Puttenham with its tall poles and fastenings (trim as Nelson's Flagship); the picturesque and useful Woodyard (alongside Seale Nurseries, founded in 1948 and specialising in fragrant climbing roses); the internationally famous Watts Gallery at Compton (recently renovated) with its complex of fine-art shops and café; the Arts and Crafts Centre at Seale with Janice Midgley's inspired tea room, cum local art gallery, cum cyclists' comfort zone and musical concert venue in a lovingly renovated barn; Puttenham Golf Course



The Woodyard, Seale Lane

itself (dating from 1893) with 18 holes (cunningly landscaped) and the small hill from which Queen Victoria, side-sitting her horse, reviewed some of her mounted troops on the heath of those times.

Some of these enterprises are as small, but as imaginative, as the Puttenham Eco Camping Barn, one of John Bannister's brain-children, and are just a few examples of careful initiatives which complement the local topography and geology while utilising them.

## Modern pressures

But, gradually, insidiously, (inevitably?) this inherited gift of the great chalk ridge is increasingly threatened by the conurbations sprawling at its four corners: Aldershot, Farnham, Woking, Guildford, Godalming. Perhaps, when next you stand at the top of the High Street of that city which currently most touches the Hog's Back with its own physical existence, the geologically infant city of Guildford, and gaze across the deep gap, incised over thousands of years by the river we call 'Wey', you may recall the huge depth of chalk still beneath your feet, beneath the mortar, beneath the cables and the sewage pipes – the same chalk which forms that



Seale Chalk Pit, now a Site of Special Scientific Interest

earred bat, weasel, badger or buzzard, etc. There is at least one small area reserved for them (by Surrey Wildlife Trust's SSSI) in the disused chalk quarry high above Seale village (which had its own kiln for producing quicklime). Sometimes contemporary farmers and other country dwellers are more informed and sympathetic than their predecessors.

hill opposite, referred to by all and sundry, without a second thought, as 'The Hog's Back', running its eight miles or so to the west – the island which emerged (even as dinosaurs became extinct) unseen by human eyes, out of an ancient sea on whose floor the chalk so gradually formed (1 centimetre in 500-1,000 years). That island which, only with foresight, imagination and human ingenuity freed of greed and impatience, will retain its integrity, at least as long as human beings are around to see it with grateful eyes until, with the great cycles of the earth's rocks, it returns to

whence it came, as shall we all.

Finally, my apologies (for not mentioning them earlier) to the illiterate species of animal and plant which co-habit with *Homo sapiens sapiens* on the Hog's Back, whether they be twayblade orchid, long-

# The government's revised proposals on badger culling

by Dave Williams, Chair of the Badger Trust and Field Officer and Secretary of West Surrey Badger Group

WITH THE FIGURES showing how inefficient the pilot culls were, and leaks from the Independent Expert Panel (IEP) report indicating that it was inhumane, not to mention the huge cost of over £4,000 per badger, you could be forgiven for thinking that surely the government will drop the idea. Well, that is if you were a normal person.

I don't think that the Secretary of State for the Environment, Owen Paterson, is a normal person. He has repeatedly claimed that the pilots were successful and that he wants to carry on for 25 years. He also claims that the Irish badger cull proves that culling badgers reduces TB in cattle. However, the BBC has recently had to apologise for saying this, when it was revealed that until the introduction of **much more stringent cattle controls and testing** there was no reduction. Prior to this

they had been killing badgers for ten years without any reductions.

It must also be noted that in Wales TB has dropped 48% in the last five years due to more frequent TB tests for cattle, and strict controls of cattle movements.

On 3rd April Owen Paterson announced that he would continue with the two pilot trials in Somerset and Gloucestershire, although with revised techniques and regulations. He has once again ignored the evidence and has made up his own mind. He has abandoned the so-called roll-out to 10 other areas in the immediate future.

He has now released the IEP report, which he obviously doesn't take seriously because his action goes completely against its advice.

We call on Mr Paterson to face up to the facts and forget the idea of killing more badgers.



## The E-petition

ON FEBRUARY 12th, an E-petition was received by Surrey County Council, asking them to refuse to allow any future badger culling on land owned by SCC.

Nearly 3,000 people signed up to it, making it the largest petition received by SCC. I was asked to say a 3-minute piece in support of the proposal. I began with the

history of TB and cattle and continued with the timeline including the Random Badger Culling Trial and its results, and finished with the fiasco of the recent pilot trials.

The councillors agreed that if culling became a possibility, then no decision would be taken without a full debate and presentations from both sides.

It should be noted that there is very little chance of Surrey being part of a badger culling area, as there is no TB in the county and we have so few cattle herds that it could not be considered a hot spot area, as specified in the government proposals.

*The articles above are reprinted with the kind permission of the West Surrey Badger Group from its April newsletter. For more information about the group see the website [www.wsbg.co.uk](http://www.wsbg.co.uk) or phone 01483 811989.*



Pat Williams 2012

### Brownfields

Brownfields are especially important for invertebrates, not only in terms of numbers of species supported, but also as homes for rare species. There are as many rare invertebrates associated with brownfields as there are associated with ancient woodland. Urban brownfield areas are often isolated from the countryside, meaning that animals have to be highly mobile to reach them. Their invertebrate communities are therefore dominated by the more mobile species – those that can fly such as beetles, bugs and flies, and those that get there by other methods such as young spiders ballooning in on parachutes of silk. (Source: Buglife)

### Better news for whales

The International Court of Justice has ordered Japan to cease its 'scientific' whaling programme in the Southern Ocean Sanctuary, with immediate effect. (Source: BBC Wildlife, May '14)

## FACTS & FIGURES

### Water scarcity

Throughout the Arab world, water supply is not enough to meet demand. Out of a total of 22 countries, 15 have been declared "water poor" by the UN Development Programme, and the remaining seven described as "deteriorating". (Source: [populationmatters.org](http://populationmatters.org), 30 Nov '13)

### Island life – 1

Ten years after the eradication of rats from Lundy Island, the number of breeding pairs of burrow-nesting Manx shearwaters has soared to an estimated 3,451, from just 300 in 2001. Populations of shags, razorbills, guillemots and puffins have also rallied. (Source: Nature's Home, RSPB, Summer '14)

### Island life – 2

Growing numbers of gannet nests on Grassholm, off the Welsh coast, incorporate plastic detritus, and every year between 50 and 100 entangled juvenile gannets have to be cut free. In 2008, there was an estimated 18.5 tonnes of plastic on the island. (Source: BBC Wildlife, Sept '12)

## FACTS & FIGURES

### GM in the USA

GM crops modified to be resistant to a total weedkiller like glyphosate have rapidly encouraged the spread of glyphosate-resistant weeds, and it is reported that insects are developing resistance too. This has led to increasing use of herbicides and insecticides. Overall pesticide use on GM crops in the USA is now higher than on non-GM, according to US government data. In the fields of Iowa, Nebraska, Indiana, Delaware and elsewhere, horse's tail (growing 6ft tall) and other weeds have become resistant to all the usual weedkillers. (Source: Living Earth, Autumn '13 and Spring '14)



## Melting glacier breaks speed record

John Bannister

THE GREENLAND GLACIER Jakobshavn Isbrae is one of the best known ice masses. Not only was it probably the source of the iceberg that sunk the Titanic in 1912, it has also set a new speed record. This glacier has been known as a speed merchant since scientists started paying attention to melting glaciers. It has been averaging a flow rate (or melt speed) of 7km a year over the last few decades. But in 2012 it exceeded this by a huge margin and averaged 17km over the year. This is an average of 46m a day! At certain times in the summer of 2012 the glacier was sliding at four times its average speed in the 1990s.

This acceleration of glacial melt is due to global warming. Glacial ice, unlike Arctic ice, contributes directly to sea level rise and this one glacier alone added 1mm to sea level in one year. In total, average sea level has risen 800mm (0.8m) since the industrial revolution started in Britain. Sea level rise links directly to flooding on land particularly coastal flooding, where most people live, which is what we have been witnessing on an appalling scale. But we should not be surprised. This is a pattern that we will see repeated in future and it should be a wake-up call to government that much more must be spent on the right

infrastructure (not roads) in order to save six or seven times as much on cleaning up after the floods.

Another interesting observation is that there has been a "pause" in global temperature rise at land and sea surface level. What is apparently happening is that the trade winds around the waist of the world (think of Pickles) have speeded up significantly. This is driving more heat down into deeper depths of the sea. More heat to the oceans means less on the surface of the globe, i.e. a pause in global warming.

Scientists expect the trade wind phenomenon to wind down by 2020 and normal service will resume. It is of course the case that greater warming of the oceans means greater water expansion, hence greater sea level rise. There is nowhere for the extra heat trapped by our man-made greenhouse gas emissions to hide safely. We are breaching the capacity of the globe to accommodate us at our current lifestyles and have been in breach for several decades.



earthobservatory.nasa.gov

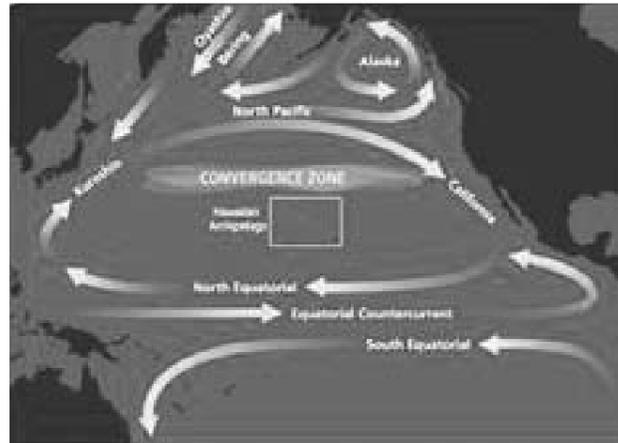
# Oceanic rubbish and its management

by Christopher Gooding, student at the Royal Grammar School

## 'THE OCEAN IS THE WORLD'S BIGGEST RUBBISH DUMP.'

Leading geographers from around the world now accept this most astounding statement. The fact that the ocean is the world's biggest rubbish dump is bad, but the consequences are appalling. However, how is it that a place uninhabited by humans has become the world biggest dump?

The ocean has become a dumping ground for waste and it is our fault. All waste is of anthropogenic origin. As a result much of the waste consists of man-made material and is not biodegradable, meaning that any waste that gets into the ocean will circulate for a long time, damaging the environment. But how is it that all this waste is in the ocean? The majority of waste present in the ocean is discharged from rivers. Businesses are dumping their waste into rivers. This waste is then carried by rivers and discharged into the sea. The



The oceanic gyres in the Pacific, which result in the accumulation of oceanic rubbish and the formation of rubbish rafts

concentrated accumulation of this waste can then be attributed to ocean gyres. Waste is circulated by these ocean currents; the circulation of this waste has resulted in massive rubbish rafts being formed in the middle of the Pacific Ocean.

### What laws exist?

The actual reasons for all this waste, first getting into rivers, and then into the sea, are appalling. In developing nations, there are little to no laws restricting the amount of the waste that can be dumped in the sea. In Somalia it costs just \$2.50 per ton to dump toxic waste off the Somalian coast. This price is incomparable with the \$250 it costs in Europe to process waste. The cost of processing waste is extremely expensive, the finances to be gained by disposing of rubbish into the sea and

rivers, are clearly evident, and as a result many businesses do so. An example of this is off the West Coast of America, where there is a mountain of tyres lying on the sea bed. They have been disposed of in the most cost-effective way possible, with no thought of the consequence.

However, waste not only comes from land-based industries. Fishing, on the industrial scale which it is now, leaves masses of waste behind. Abandoned fishing nets contribute substantially to waste. Moreover the amount of oil and toxins that get into the ocean by ships filtering sea water through their dirty oil tankers to clean them is unbelievable. The oil pollutes the water, damaging the environment.

Radioactive waste is often disposed into the sea, having a significant impact on marine environment; Shipwrecks from the war and even natural disasters such as the 2004 tsunami, in which thousands of tons of debris were washed back into the sea, all contribute to the enormous waste that now occupies our oceans.

### It's 90% plastic

Knowing the composition of ocean waste is key to understanding how and why it needs to be reduced and managed. Ninety per cent of all ocean waste is plastic. In 2006 the United Nations Environment Agency estimated that every square mile of ocean is host for 46,000 pieces of floating plastic. Those figures are disgraceful and have certainly risen in the last eight years. In some areas the amount of plastic outweighs the amount of plankton by a ratio of nearly 6:1. This is intolerable. In addition, Greenpeace states that of the 200 billion tons of plastic produced each year, 10% of it finds its way into the ocean.

The effects and implications that these levels of waste bring is what make it such an environmental



Rubbish that has washed up on Msasani Bay, Tanzania

problem that requires immediate attention. Firstly, the effect waste has on marine life: fly ash from power stations that has been dumped on the sea bed causes a sterile lifeless environment in which fish and crustaceans cease to live, killing off whole ecosystems; and radioactive waste can cause mutations by poisoning fish and sea creatures.

But sea waste also affects animals as a whole. Plastic, the most common form of ocean waste, is continually being washed up on our beaches. Plastics are usually colourful and small, bearing a resemblance with fish. Animals such as birds may mistake this plastic for fish and feed it to their young, who then die from ingested plastic. It's horrific. Plastics make up the bulk of the pacific rubbish rafts. Birds and fish try to feed of these rafts, and consequently die. Several years ago a marine biologist conducted a survey into the effect plastic is having on fish. During his investigations he found that 33% of fish studied had plastic fragments in their stomachs. That is a phenomenal amount of affected fish.

Humans are also at risk. Over 50 years ago thousands of newborn babies in Japan were diagnosed with mercury poisoning, leading to severe disabilities. The cause was ocean waste. Toxic mercury waste, dumped into rivers by industrial businesses and discharged into the sea had found its way into food chains. Fish, having ingested this mercury, were caught, sold and eaten by pregnant Japanese women. The mercury present in these fish transferred to the unborn fetuses, poisoning them. The lives of thousands of innocent people had been wrecked by the dumping of toxins into rivers.

Ocean waste cannot be taken lightly; it is a serious issue that needs to be rapidly and effectively addressed.

### Action at last

Across the globe action is now being taken to manage, combat and reduce the level of rubbish in the ocean. The most obvious primary action to take is legislation. International government bodies such as the UN have provided laws and regulations for countries to adopt. The International Maritime Organisation gave a protocol which was finally adopted in 1996, illegalising the dumping of waste into the ocean. However, in developing nations such as Somalia there is not enough enforcement. This brings up the question of enforcement in

itself. Recently the use of technologically advanced equipment is helping to combat ocean dumping. Remote sensing via satellite can be used to detect ships dumping oil into the sea, and these ships can then be tracked and fined. This ability is a great deterrent, demonstrating positive enforcement of these laws. Education also has a role to play. Across the globe people are unaware of the impact that ocean dumping can have and is having on our environment. Educating the 'polluter' is certainly a viable form of reducing the level of rubbish being dumped into the sea. In addition, creating biodegradable and recyclable plastic, such as what PEPSI CO made two years ago – a 100% PET plastic bottle – has an effect, with impacts of both financial and environmental significance. Recyclable material does not cost as much to process as unrecyclable materials, as well as being more environmentally friendly. 'Reduce, Reuse, Recycle' is a good policy to adopt with regard to ocean waste reduction.

However, all these ideas only limit the amount of waste being added to oceans, without reducing the amount of waste already in oceans. Supporting initiatives like the International Coastal Clean-Up, which picked up more than 100 million pounds of ocean rubbish in 2012, is certainly an effective way of reducing rubbish.

Oceanic rubbish is a serious problem. It is a complicated problem, but one that through certain initiatives, laws and education can be tackled. The impact that the ocean is having on our world environment is simply too great for us to ignore. Something must be done, and quickly, or else our oceans, which directly support more than 50% of life on earth, could become very barren indeed.



The remains of a dead albatross having ingested plastics washed up on the beach



**Guildford Environmental Forum aims to improve the environment in and around Guildford for wildlife and for people and to build a sustainable future.**

Join us in our work for the town and have this newsletter posted to your door four times a year. Forum membership costs only £10 per year or £15 for a couple, and new members are warmly welcomed.

Please contact Adrian Thompson on 01483 222687 or e-mail [adrianthompson46@talktalk.net](mailto:adrianthompson46@talktalk.net)



# CALENDAR



All the Forum's Group meetings are open to the public

## Saturday 21 and Sunday 22 June

### Surrey Wildlife Trust's BioBlitz.

Join the Trust's family-friendly days at Newlands Corner, to help them learn more about the wildlife that lives there. Drop in when you want.

Times: Saturday from 6.45pm to 11.30pm, Sunday from 6.00am to 4.00pm.

Admission: adults £4, children £2.

Meet: at Newlands Corner Visitor Centre, Shere Road, Guildford GU4 8SE.

Please note, some specialist surveys and activities require advanced booking.

For full details, see the website <http://www.surreywildlifetrust.org/whatson>

## Monday 23 June

### GEF Annual General Meeting

followed by a talk by Sean Harrison, Woodland Adviser, SurreyHills AONB:

#### "Management of Woodland in the Surrey Hills".

1900. Council Chamber, GBC Millmead Offices.

## Sunday 27 July

Last day of **Guildford WalkFest 2014 - "From Water Power to Wildlife"**.

See some of Guildford's green gems during this 5½ mile walk which will take you over the Downs and by the river to see environmental projects in action.

Time: 2pm to approximately 5pm.

Meet: on the town bridge by the GEF sign, at the bottom of the High Street.

Contact: Adrian Thompson on 01483 222687 or email [adrianthompson46@talktalk.net](mailto:adrianthompson46@talktalk.net).

## Tuesday 2 September

Transition Guildford with Surrey Wildlife Trust: **Scything for Beginners and Improvers.**

Another of our highly successful one-day courses run by Mark Allery. Learn setting up, mowing techniques, sharpening, safety, everything you need to know to get started or to hone your existing skills with the scythe.

Time: 1000 to 1600.

Meet: at our beautiful Rosamund Fruit and Vegetable Community Garden, near Longdown Road, Guildford.

Cost: £25 per head for the day, including light refreshments.

Book with Frances Halstead, tel 07891 514574 or email [frances.halstead@surreywt.org.uk](mailto:frances.halstead@surreywt.org.uk).

# GUILDFORD ENVIRONMENTAL FORUM

### Chair / Biodiversity – Raymond Smith

7 Felday, Holmbury St Mary, Dorking, RH5 6NJ

E-mail: [raysmith.biodiversity@envirohistory.waitrose.com](mailto:raysmith.biodiversity@envirohistory.waitrose.com)

### Vice Chair – Damien Short

Institute of Commonwealth Studies, School of Advanced Study, University of London, 2nd Floor, South Block, Senate House, Malet Street, London WC1E 7HU

Tel: 020 7862 8836 E-mail: [damien.short@sas.ac.uk](mailto:damien.short@sas.ac.uk)

### Transport – Alastair Atkinson

7 Elles Avenue, Guildford, GU1 2QH

Tel: 07929 138650 E-mail: [bags@btinternet.com](mailto:bags@btinternet.com)

### Waste and Recycling – Lucy McSherry

E-mail: [lucy.mcsherry@hotmail.com](mailto:lucy.mcsherry@hotmail.com)

### Sustainable Building – Richard Weavis

Tel: 01730 821562 E-mail: [richard@rewconstructionservices.co.uk](mailto:richard@rewconstructionservices.co.uk)

### Community Projects – John Bannister

2 Littleholme, Upper Guildown Road, Guildford, GU2 4EZ

Tel: 01483 570468 E-mail: [johnw.bannister@virgin.net](mailto:johnw.bannister@virgin.net)

### Schools – John Bannister

2 Littleholme, Upper Guildown Road, Guildford, GU2 4EZ

Tel: 01483 570468 E-mail: [johnw.bannister@virgin.net](mailto:johnw.bannister@virgin.net)

### Food Group with Transition Guildford – John Bannister

2 Littleholme, Upper Guildown Road, Guildford, GU2 4EZ

Tel: 01483 570468 E-mail: [johnw.bannister@virgin.net](mailto:johnw.bannister@virgin.net)

### Treasurer – Adrian Thompson

Lamp Cottage, The Street, East Clandon, Nr Guildford, GU4 7RY

Tel: 01483 222687 E-mail: [adrianthompson46@talktalk.net](mailto:adrianthompson46@talktalk.net)

### Membership – Position vacant

(Adrian Thompson pro tem)

### Newsletter – Clare Windsor

15 Tuesley Corner, Godalming, GU7 1TB

Tel: 01483 418048 E-mail: [clare.windsor@waitrose.com](mailto:clare.windsor@waitrose.com)

**Guildford Environmental Forum's newsletter is published in March, June, September and December.**

**Please send contributions for the next issue to Clare Windsor by Monday 11 August.**

**The views expressed in this newsletter are strictly those of its contributors and Guildford Environmental Forum.**