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Guildford Environmental Forum newsletter

September 2023 - November 2023

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Ripening guelder rose berries, photographed by Raymond Smith

WE BLOOMING WON! Rosamund Community Garden wins gold in the 2023 Guildford In Bloom Competition

by Clare Millington

WE ARE very excited to have won **joint category winner for Best Wildlife Garden** in the 2023 Guildford in Bloom Competition!

Judges dodged the summer rainshowers to visit the garden when the grass was up, the crickets humming and the marbled white butterflies looking handsome on the knapweed. This year we emphasised the role of the garden and fields as a conservation site within the wider landscape of rare chalk grassland habitat around Guildford, as well as the variety of links we are forging with other local community groups and charities such as Zero Carbon Guildford, Community Orchard Project South East, Buglife & Surrey Wildlife Trust.

It was good to be able to demonstrate the improvements to the diversity in Rosamund field from three years of conservation grazing and tree popping and show off the beautiful meadow flowers and the view over Guildford whilst hearing linnets, greenfinch and skylarks calling.

Sarah explained about how she was using space in poly 2 to grow plants for the Surrey Wildlife Trust Wilder Communities day, Charlotte talked about our scything day and how we are working to improve the meadow in the orchard area, and Peter about his work to record and educate us all about our bees and moths.

Our corporate days with Systra and Galliford Try, our pond project, our new willow compost loo, our ongoing experiments with natural building techniques in the Hub as well as our composting system, efforts to protect and enhance the ecosystem underground in the soil in our growing area and our low cost events such as willow weaving, wassail and apple pressing were all praised by the judges. They also noted the use of the garden by DofE students and Halow learners.

Thank you to every single one of our volunteers who has supported Rosamund Community Garden over this year, whether financially or with your time and energy, to help support all that we are doing.

And an **extra special shoutout** to Ann for her hard work in applying for the award, and a big thanks to Helen for impressing the judges and remembering all this info during the garden tour!

Come see the garden's projects for yourself on one of our events, or sign up to volunteer with us, by visiting our website:

http://www.guildfordcommunitygarden.org.uk/

2023 Guildford in Bloom Awards Night

The Mount Volunteers: One Year On

by Frances Rollin

THE MOUNT Volunteers has been in existence for over a year now. We have 65 members on our active WhatsApp group and have had many interesting and exciting events over the last 12 months.

For those that have not come across us before, we are working to preserve the habitat on the Mount, a piece of land above Guildford. There are 4 fields – all owned by Guildford Borough Council - which run from above Guildford County School to the top of the Farnham Road. All four fields are rare chalk grassland, with the potential to be a haven for biodiversity. However, on three of the fields, the hawthorn, brambles and wild clematis are taking over and causing the wild flowers and grass mix to suffer.

We started our practical work in October 2022 and had 5 really successful scrub clearance sessions, between then and March 2023 ,in what we now call "our field". An impressive amount of hawthorn has been removed, and you can really see the difference when you look down from the path.

Once the ground nesting birds were back, we focused on other things. On 13 May 2023, David, our resident Butterfly Conservation expert, very kindly took some of us along his butterfly transect, which runs partly through our field. A few highlights were 15 green hairstreaks, 3 dingy skippers, 71 brimstones and 49 holly blues. It was a very exciting trip. David continued taking volunteers along his transect every month. He reported 5 small blue butterflies (in our field) and a grizzled skipper on his transect in June 2023. On 24 June 2023, he recorded a bumper count of 432 butterflies.

On 20 May 2023, we held a small mammals and bat evening. John Andrews of Guildford Borough Council kindly led a group around the field looking for small mammals. He had laid some catch and release traps out beforehand. As we moved round each trap, he gave us some fascinating facts about the mammals we might see. After numerous empty traps, the final box held a bank vole. Everyone was delighted! As the evening drew in, James and Caroline gave us a presentation about bats. We all then took bat detectors through Henley Wood. Common pipistrelles were heard. On the way home, numerous toads were found crossing the path at the top.

Trevor Murrells, active member of the Mount Volunteers, participated in the European Stag Beetle Survey in June and July and has been encouraging us all to look out for stag beetles. None were found on the Mount, but one large male did crash into Trevor at the top of Hedgeway in Onslow Village!

The flowers in our field from spring onwards have been exceptional. The pyramidal orchids have been numerous. A very special and rare bee orchid was spotted by one of our volunteers on the Mount in June.

We held our botanical survey on 16 July. Assisted by 4 members of the Botanical Society, we carried out a rapid assessment of 15 quadrats. Common favourites were Fairy Flax, Common Eyebright and Common Centaury. A six-banded clearwing moth was also spotted in the grass. As we worked, we enjoyed hearing the greenfinches, greater whitethroats and skylarks that live in and around our field.

As I write, we are in the middle of a week-long hedgehog survey, organised by Tara Pirie, Head of Ecology and chair of the Hedgehog Working Group at Surrey University. Results so far show plenty of small mammals and a toad, but any hedgehogs are shy about revealing themselves.

During all this excitement, we have secured some funding from Surrey County Councillors - Angela Goodwin and Colin Cross. This will allow us to buy some of our own tools, as well as a shed to store them in. Credit Agricole has also given us a generous donation. We are also in the process of getting a very smart sign board to put up in our field, kindly paid for by Stevens & Bolton LLP - local Guildford law firm.

Our practical sessions start up again on 8 October 2023. The digs will be monthly, every second Sunday of each month from 10am until 1pm. Do visit our website if you would like to be involved.

James Sinclair has designed and set up a website for the Mount Volunteers! Please do have a look on: https://mountvolunteers.wixsite.com/guildford or email mountvolunteers@gmail.com

Saying Goodbye to Zero Carbon Guildford's First Home

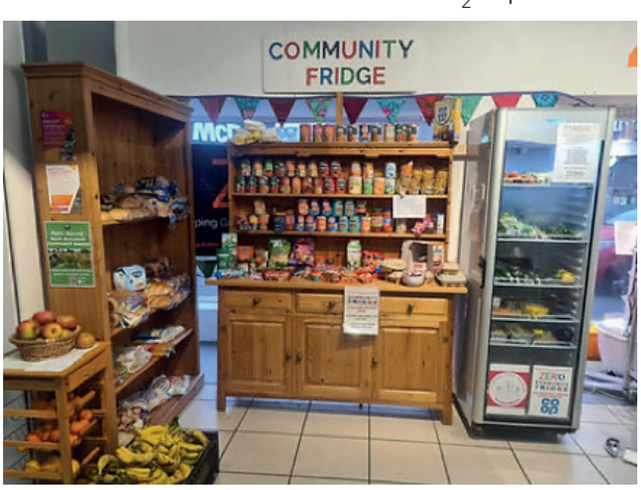
by Sarah Davis

THIS REALLY has been a second home for many. Given that the whole organisation has been run entirely by volunteers, with many fitting it around work, family life, etc., it is remarkable what an eco-footprint ZERO has left on the town, and will continue to do so in its new format. I can remember the early days, when we first opened, helping GEF staff the welcome desk, freezing cold in the winter months with our woolly hats on (one disadvantage of such a big building), welcoming in a few curious passers-by.

The vision was always strong, led by then-Chair Ben McCallen and all the dedicated custodians and volunteers. ZERO very quickly became a buzzing hive of activity. A climate hub with a café, refill shop, community fridge, climate cinema, regular vintage clothes sales, talks and open mic nights, a green library, a library of things, and endless workshops, projects, educational displays - the list goes on. Most importantly, it was a place where networking could thrive with other like-minded community organisations, such as helping with research at the University (into air pollution), incorporating Citizen Science (the Water Rangers), reaching out to local businesses (the Sustainable Business Network), and bringing the community together within a supportive and informative environment. Where else in Guildford could you fill your basket with healthy food from the Community Fridge, buy an affordable hot drink and vegan cake and sit and relax for a while amongst lush green Vertical Farming Towers?

Over two years, we have been able to measure the success of a lot of the projects that we've run. For example, the Community Fridge, Feb - Sept 2022:

- Served 3,623 visitors
- Diverted 6,987.7kg of food waste
- And saved 13.28 tons of CO_2 equivalent.



Another example of a very successful and ongoing project is our Water Rangers, who test the water quality of our River Wey. Over the last two years, more and more volunteers have joined up, completed their training and gone out into the wonderful countryside to do Citizen Science data gathering. Once a month we cover over 47 sites along the River Wey. The data is collected in collaboration with The River Wey Trust and Fresh Water Watch. Thus, we have gained a true picture of our river's health, and a way to monitor it going forward. The regular monitoring has helped us become much more aware of our local river environment, and our research has proven that testing our river makes people care.

Our Water Rangers' sampling of their participants feedback demonstrates that people who get out and test water also:

- Appreciate local wildlife & ecosystems
- Are more aware of their surroundings, identifying and caring about pollution and other negative environmental issues
- Think creatively about other ways to protect local ecosystems

Our target is for the River Wey to be safe enough to swim in one day. More recently, the Water Rangers did a crowdfunding campaign and raised just over a £1,000 to set up an e-coli lab as part of the new ZERO premises. This will allow us to test the river for e-coli in a timely fashion and inform our wild swimmers and boaters, keeping everyone safe.

Vertical farming was another project which I led over the last two years. We used this project to drive education and spread innovative growing techniques through the community, so that during times of crisis and food insecurity the community can support itself with fresh fruit and veg. Amazing things happened in mutual aid groups in Guildford and across the country when lockdown kicked in. We will need this level of collaboration (and a lot more), given the threat and severity of climate crisis-related food insecurity.

Unfortunately, the lease has now run out on the building on Friary Street where ZERO was housed. We had a celebration on the final day to commemorate closing the doors, and we have had to pack everything up until we find a new home for ZERO. We have successfully crowdfunded for the move and raised £40,500. We have a team hard at work looking for a new venue. In the meantime, we have the Zero Carbon Guildford website (www.zerocarbonguildford.org) where outdoor events for the autumn season will be published. We are looking forward to the next chapter of ZERO's life.

The SDGs: The World's Guide to Sustainability

by Anna Williams

YOU MAY have heard reference to the funky initialism "SDG", seen a colourful logo claiming "climate action" or perhaps even seen a colourful wristband on a stranger or celebrity such as David Beckham.

But what do all these things have in common? They are all to do with the UN's Sustainable Development Goals (SDGs).

Implemented by the United Nations in 2015, the SDGs are part of the UN's 2030 Agenda for Sustainable Development. These goals are frequently referred to by the variety of organisations working towards this goal.

There are 17 goals, created to be "holistic", meaning they approach sustainability from all angles. The goals may be environmental, such as SDG15 - "Life on Land". They may be economic, such as SDG8 - "Decent Work and Economic Growth". Or, the goal could be social, such as SDG5 - "Gender Equality".

The SDGs understand how people and the planet are linked, and acknowledge that true sustainability is not reached without linking them. As they are such large goals, they are split up into smaller targets. Read more about the 17 SDGs and the areas of development they are targeting here: https://sdgs.un.org/goals

The colourful wristbands you may have seen are known as "togetherbands". They are made from recycled ocean plastic in the different colours assigned to each goal. If you're interested, you can find them here https://togetherband.org/.

Just like Beckham, you can support your favourite goal on your wrist!

Himalayan Balsam on Whitmoor Common

by Richard Seymour

HIMALAYAN BALSAM (Impatiens Glandulifera) was introduced in 1839 by Victorian plant hunters, and it quickly escaped into the wild to become one of the UK's most invasive non-native weeds.

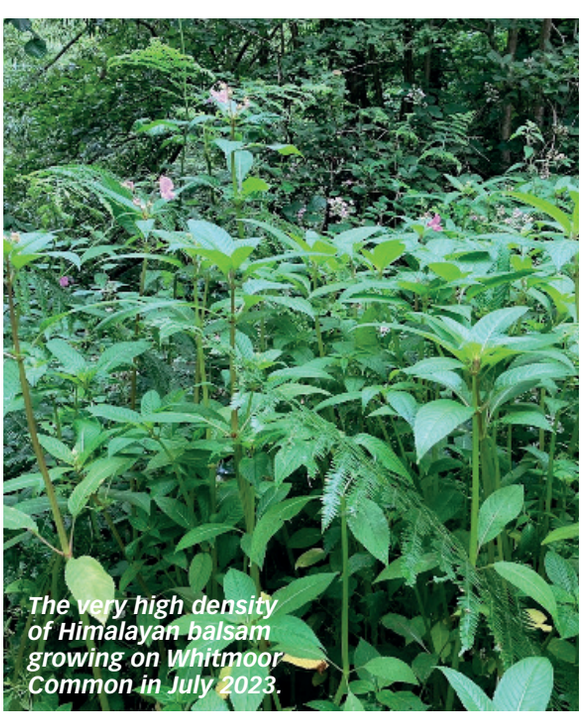
It is a relative of the "Busy Lizzie" and thrives in wet habitats close to rivers, streams and ponds. The Victorians may have been attracted by the colour of the flowers, which is shown in the photograph, as well as the speed at which the plant grows and adapted to our temperate climate.

Recent voluntary conservation work, completed in June & July with Surrey Wildlife Trust on Whitmoor Common, revealed that the plant is capable of growing at a very high density, with as many as 50 separate plants growing in a square metre. These dense stands shade and prevent native plants from growing, thus reducing the biodiversity of the area.

Himalayan balsam in flower, July 2023

Therefore, management on Whitmoor Common is necessary due to the high status of the heathland. The easiest way to manage Himalayan balsam, though labour intensive, is by pulling the individual plants out, since their root systems tend to be small relative to the size of the plant. This process is easy, especially if the ground is moist after a period of rainfall, but needs to be done on an annual basis in order to prevent the spread of the plant.

Himalayan balsam has a colourful flower, often pink or white. However, the problem is that these flowers are capable of producing exploding seed pods with as many as 800 individual seeds which can be scattered up to seven metres from the plant. Seeds will germinate two or three years after the original dispersal. If the plant is found close to rivers or streams, seed dispersal is eased by the flowing water, which helps to explain the ubiquitous location of this invasive weed along UK rivers and streams.



The very high density of Himalayan balsam growing on Whitmoor Common in July 2023.

The plant produces sugary nectar, often more than other flowering native plants, and consequently it is more attractive to bees and other insects, often leaving other flowering plants unpollinated. In this context it is worth viewing the video clip on YouTube titled "Bees on Himalayan Balsalm - Ghost Bees": www.youtube.com/watch?v=VKDsn0zzeEA&ab_channel=BlackMountainHoney

Himalayan balsam grows very quickly, often reaching a height of 2 – 3 metres during the growing season. When it dies back, it can leave river banks without any vegetation, thus making them more vulnerable to erosion.

Since Himalayan balsam is one of the most invasive plants in the UK, the Wildlife and Countryside Act of 2011 made it an offence to introduce Himalayan balsam into the wild. Bearing in mind the range of problems this plant causes, the work being done by SWT and the volunteers over a number of years is clearly beneficial to Whitmoor Common.

Barn Conversions May Become 'Permitted Developments': Could this be a threat to AONBs?

by Raymond Smith

THERE HAVE, of course, been several retrograde environmental policies proposed by the government over the summer. One of the less well-publicised proposals was picked up on by The Guardian, who explained how a plan to allow barn conversions without planning permission "would destroy England's national parks"[1]. The particular point there is that historic field barns could be converted into houses, suburbanising the valleys of, for example, the Yorkshire Dales.

This is not just a threat to National Parks, - it also applies to Areas of Outstanding Natural Beauty (AONB). The proposal to make barn conversions "permitted developments" covers all Article 2(3) land. This article is a key provision of planning legislation that applies extra protection to any AONB.[2]

Barn conversions are already carried out in the AONB, but with the safeguard of needing planning permission. The process of pursuing a planning application is not particularly onerous for applicants and is likely to be a small part of the overall cost of a development. It is the function of the planning system to ensure that harmful impacts are limited. It is intended to protect the public interest.

There is no reference in the consultation to the interaction of the proposed permitted development with the Green Belt designation. In the absence of an explicit statement that permitted development rights do not override the protection of the Green Belt, it is likely that developers would claim that Green Belt designation does not offer protection.

The problem could be worse than this, however. The erection of agricultural buildings is in itself permitted development, albeit with some limitations. It is therefore open to landowners with a moderately long-term timescales in their land management to build "agricultural" buildings, with the intention of converting them to residential use, and thereby converting land from agricultural value to prime residential value. This is unlikely to be with the intention of providing homes for agricultural or other rural workers. Indeed, it appears, from the consultation, that this option is acknowledged, as there is an expectation that new agricultural buildings would become eligible for conversion after only 10 years.

It is not just ironic that, as the Surrey Hills AONB is being considered for enlargement, the government wants to undermine significant parts of the protection that it offers.

Whilst the consultation[3] closed on 25th September it may still be worth writing to your MP about it.

[1] www.theguardian.com/politics/2023/aug/07/proposals-to-ease-planning-laws-in-englands-national-parks-condemned

[2] www.legislation.gov.uk/uksi/2015/596/schedule/1/part/1/made

[3] www.gov.uk/government/consultations/permitted-development-rights/consultation-on-additional-flexibilities-to-support-housing-delivery-the-agricultural-sector-businesses-high-streets-and-open-prisons-and-a-call-f

Wild heather growing in the Surrey Hills AONB

A possible new geological epoch: the Anthropocene. What are the implications for our grandchildren?

Part 1 of this article, 'Human Impacts on the Planet', appeared in our last edition.

By Colin Summerhayes, Scott Polar Research Institute, Cambridge University (Trustee of ZERO)

Part two: Global Overheating

IT'S BEEN known since the laboratory experiments of John Tyndall, FRS, in the 1860s, that CO_2, methane and water vapour are greenhouse gases. They absorb heat coming from the Earth's surface and re-radiate it in all directions, keeping the atmosphere warm. Our atmosphere now contains c.420 ppm of CO_2, almost double what Earth experienced in past warm interglacial periods. Combined human-supplied extra greenhouse gases (excluding water vapour) now amount to 500 ppm. The last time the Earth's climate saw values like those was in Mid-Pliocene times 3.2 million years ago, when temperate forests covered Ellesmere Island and Greenland.

Although water vapour is an important greenhouse gas, it has no effect in the stratosphere, where the cold freezes it out. It is important in the troposphere, where due to evaporation a warming of 1degC puts 7% more water vapour into the air. This evaporation factor accentuates the effects of other greenhouse gases. In the troposphere, water vapor is the dominant greenhouse gas (~50% of the global warming effect), followed by clouds (~25%) and then CO2 with ~20% (Schmidt et al, 2010). Other contributors are minor.

Over the past 2.6 million years, Earth has experienced slow changes in climate, of the order of 20,000 to 100,000 years long, caused by changes in the Earth's orbit and tilt of its axis. These created alternations between long cold glacial periods and brief warm interglacial periods one of which (the Holocene) we have been in for the past c.12,000 years. Peak insolation (solar radiation) was reached c.12,000 years ago, after which insolation slowly declined, taking Earth into the 'neoglacial' climate of the past 4,000 years. Astronomers predict that the next full glacial period will not occur for another ~30,000 years.

Faster, but smaller, changes in climate come from changes in the sun's output. When sunspots are abundant the solar wind is strong and it protects the Earth's atmosphere from cosmic rays. When the solar wind is weak, more cosmic rays can enter the atmosphere, where they produce marker isotopes 14C and 10Be, which become trapped in stalactites, tree rings and ice cores. At these times the climate is cool and ice floes drift further south through the North Atlantic. We can identify their passage from accumulations of ice-rafted sediment. Throughout the Holocene there were irregular fluctuations in warming and cooling attributable to solar change. But they were very much smaller than those of glacial-interglacial change. In western Europe, the solar-caused cold periods coincided with high rainfall, giving rise to high lake levels. One such cold period was the Little Ice Age, centred on about 1650.

Since then, sunspot activity peaked in the 1780s, in the 1860s, and in 1980-90. If the sun was driving climate change throughout this period, the temperatures at these three times should have been the same. They were so in the 1780s and 1860s, but were very much warmer in 1980. Furthermore, since 1980, sunspots declined while temperatures rose. Climate scientists conclude that the rise in greenhouse gas emissions since the 1950s accounts for the high temperatures in 1970 and beyond.

What does the future hold? Average global warming is now c.1.1degC above 1900 levels. If greenhouse gas emissions continue increasing, we should see the global average reach 1.5degC by 2030 and maybe 2degC between 2050 and 2100. With the El Niño event of 2023, we may see 1.5degC even earlier. Governments meeting annually under the UN Framework Convention

on Climate Change (UNFCCC) have agreed to aim for Net Zero. This means taking out of the air as much CO2 as our processes pump into it. While this seems a worthy goal, it fails to address the fact that this will maintain CO2 levels about where they are now, which means that the world will continue to warm. That is a real problem, because while the average global temperature may be c.1.1degC, it is 2 or 3 times that in the polar regions, which explains polar ice melt. Maintaining CO2 levels through Net Zero will melt more ice and raise sea level further. To get global average temperature below 1.5degC, we will have to bring CO2 levels down - a big (and expensive) ask.

Melting ice is important for two reasons. Firstly, if it melts on land, the water goes into the ocean and raises sea level. Secondly, if we lose highly reflective ice and snow, the exposed dark coloured land and ocean will absorb the Sun's energy and heat up (Earth's albedo will decrease). As a result, the Arctic will get a double whammy: greenhouse gases warm its air; then the decreasing albedo warms it further. As a result, the Arctic is warming 2 to 3 times faster than the global average. Few people know that, and the focus on keeping the global average temperature no higher than 1.5degC (over 1900 values) obscures the fact that this will sustain warming and ice melt.

In terms of the Great Acceleration beginning in 1950 (see Part 1), the CO_2 and temperature picture is slightly clouded. Although more than 90% of burning of fossil fuels has taken place since 1950, the acceleration of airborne CO_2 emissions dates from roughly 1965, while the associated acceleration in air temperatures dates from 1970. The CO_2-temperature association between c. 1940 and 1970 was obscured by the dirtiness of coal-based industrial outputs and home fires producing aerosols that reflected solar energy. These aerosols gradually disappeared by 1970 as Clean Air Acts took effect. As the use of coal as a primary fuel decreases, aerosols that keep the climate cool will disappear, allowing the climate to warm further without adding greenhouse gases.

What does geology tell us may happen if warming is sustained? During the last interglacial around 125,000 years ago, sea level rose by up to 15m above present levels over a period of about 3000 years, before declining. Temperatures at the time were like those of today. There was a similar sea level rise in warm Mid-Pliocene times 3.5 million years ago. Although sea level is currently rising slowly, geology tells us that there is normally a considerable lag between temperature rise and full ice melt. Bearing that in mind, we might expect to see sea level rise reach up to 2m (above 1900 levels) by 2100, and between 5-15m (above 1900 levels) over the next 200-300 years.

How long might the Anthropocene last? Calculations by climate modellers suggest it could be as much as 500,000 years, depending on how much greenhouse gas we emit in the next 50 years. Evidently, CO2 has a very long tail (Archer, 2011). To escape from such a prospect we must drastically reduce CO2 and CH4 emissions, which will require a massive, rapid and costly change to our global energy infrastructure. It is doable. But are global citizens prepared to pay the cost? If not, we will have to bear the equally large (or even larger) cost that comes with extreme warming and sea level rise. We are caught between a rock and a hard place. It's not just a financial issue.

The key question is: What kind of world do we want to leave our grandchildren with? We must move from inadvertent to deliberate planetary engineering. *It's not about saving the planet, it's about saving civilisation as we know it.*

Archer, D., 2011, Global Warming: Understanding the Forecast (2nd Ed). Wiley.

Schmidt, G., Ruedy, R., Miller, R., & Lacis, A., 2010, Attribution of the present-day total greenhouse effect, J. Geophys. Res., 115, D20106.

EVENTS

All the forum's events are open to the public!

DECEMBER 3RD, 10AM - 12PM
Rosamund Community Garden Christmas Wreath-Making Workshop

We'll provide a willow base and foliage to weave in. Please bring your own decorations, extra foliage if desired, and if you have secateurs they will come in useful! Tea, coffee and a mince pie are included. The workshop will be led by Clare, Helen and Jane, volunteers at the garden. If the weather is fair, we intend to be outdoors, with a fire pit to keep us warm. If wet, we'll be in polytunnel 2! There are 12 spaces available (if there are enough on the waiting list we may consider an additional date).

You'll find the garden on Longdown Road, GU4 8PP

Contact: guildfordcommunitygarden@gmail.com

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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 around the town and have this newlsetter posted or emailed to you four times a year. Forum membership is only £10 per year or £15 for a couple, while for age 21-25 it's £5 and for under 21s it's free. New members are warmly welcomed! Please contact Janice Bennett or Sarah Smithies with any queries.

Please send all newsletter submissions for our winter edition (articles or photographs) to Isabel Davies by December 5th at the latest!