April 2012 Issue 9

**NEWSLETTER**
**of the**
**Medlock & Tame Valley**
**Conservation Association**
(Registered Charity Number: 504558)

# Welcome to Springtime!

**Never yet was a springtime, when the buds forgot to bloom.**

**—Margaret Elizabeth Sangster**

**The season of renewal and rebirth has come around again. Welcome Springtime!**

In Springtime, we can ALL see something for the first time. Branches are sprouting thick buds escaping from winter's austerity. Flowers are pushing their way through the earth. Sunlight is being refracted through raindrops and reflected back off the rear surface, which we see as a rainbow - and each one unique in Spring showers of rain. The days are longer, gardens are looking better (hopefully) ponds have new frog spawn; territorial displays and nest material gathering time is here in preparation for new life; the larvae we saw on our last pond dipping session will be transformed into adulthood and, after the recent spell of good weather, the bees are flying and the smell of Hawthorn is already in the air.

## CLIMATE CHANGE

Studies have shown that climate change has affected the behaviour of migrating birds, trees coming into leaf, and frogs spawning.

Research in the 1970s by Britain's foremost expert on hedgehogs, Dr Pat Morris, revealed a direct

link between hibernation and climate which marked a difference in hedgehog hibernation patterns across the UK and prolonged inactivity in proportion to the coldness of the winter. Dr Morris explains: "Age, sex and weather all appear to influence the timing of hedgehog hibernation.

*"However, mild weather can also delay hedgehogs entering into hibernation or elicit premature awakening, impacting on the creature's fat reserves and breeding times and consequently affecting the long-term survival of the species."*

Although the precise impact that climate is having on the hedgehog is unknown, in the 1950s there were an estimated 30 million hedgehogs, a number significantly lowered by 1995 with only 1.5 million counted.

Endangered hedgehog searches for food
Photo: Lars Karlsson via Wikimedia Commons

Changes in the timing of waking hedgehogs since the initial research 40 years ago can help scientists understand hedgehogs and hibernation better. Typically the species hibernates between November and the end of March to preserve energy when food is scarce.

Director of conservation for Dorset Wildlife Trust, Imogen Davenport said: "*We carried out a county-wide survey a few years ago and it seems that hedgehogs really rely on gardens in our towns and villages as havens. So we'd encourage everyone to leave a corner of their garden for wildlife."*

Hedgehog records will be taken from 1st February until 31st August 2012, by which time all hedgehogs should be awake.

**ENERGY PROJECTS** http://www.medlockandtame.org.uk/renewable.html

We have now purchased a small wind turbine and two solar panels. The solar panels have been mounted on the front of Burlinson House (south facing) which gathers the most amount of light.

The solar panels will provide energy to a large battery in the cellar enabling the workshop to be "off grid" with energy to spare giving renewable power to experiment with.

The small wind turbine will have to be monitored in various positions so that we can maximise on the amount of wind received and energy output.

The appearance of spring opens up the possibility of continuing the hydro project. Last year the IBC tank was moved behind the garage. This collects the garage rainwater with which we hope to power a water wheel.

We have several opportunities to present the work we have done to various meetings in the coming months and it is envisaged that we have table top models for 'hands-on' demonstrations to those who come along to see the 'science in action'. Below is one such model!

## Miniature Wind Turbine

**This project is for a small scale portable wind turbine suitable for charging AA sized batteries.** This device provides an alternative energy source using free energy from the wind.

The range of devices which use power in this form is large and growing from mobile phones and digital cameras to remote controls and battery powered clocks. We discard millions of batteries every year and even when we use rechargeable cells, charging them from the A.C. mains supply is a very inefficient way of using energy as much of it is lost in the transformer.

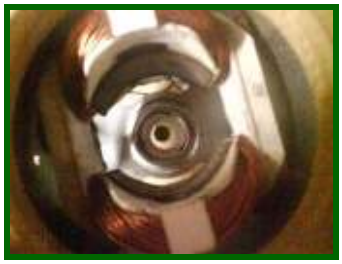
### Materials

Any renewable energy device requires a certain amount of energy to manufacture it, so a key measure of such devices is the return on energy invested. The device has to generate the same amount of usable energy as was used to manufacture it before it starts paying for itself. By making use of recycled materials less energy has to be invested in constructing the device and this also gives a new lease of life to discarded materials which would otherwise end up in land fill.

### Dynamo

The dynamo was constructed from a motor recovered from a vacuum cleaner. This kind of motor has two sets of coils. The stator coils are fixed to the motor chassis and rotor coils are attached to an axle. In normal motor operation, electrical power is supplied to the rotor coils through carbon brushes. When these burn out the motor fails and the device is discarded. By removing the rotor

coils and replacing them with a set of permanent magnets mounted on a length of threaded rod the damaged motor can be recycled as a dynamo.



A motor with the rotor coils removed exposing the stator coils

Assembled dynamo being fitted in the housing

## Housing

The housing for the dynamo is made from a standard sized food tin. Using a hole saw, a Perspex lid was made to fit the tin and this was drilled centrally for the axle and with fixing centres to bolt the dynamo to it. A small strip of sheet metal was used to make a bracket to secure the lid to the housing with two self tapping screws.

## Turbine blades

The blades are made from a length of plastic drainage pipe about 7cm in diameter and 30cm in length. The pipe is cut into three sections using diagonal cuts so that the section gets narrower and is offset at the narrow end. This creates a twist in the section which forms the aerofoil.

## Blade coupling

To couple the blades to the axle an equilateral triangle with sides 7cm was made out of light sheet metal (0.5mm steel). This was drilled centrally to the same diameter as the axle and two 5mm holes made at each edge about 2cm apart. These will bolt the blades to the triangle. The edge of the triangle is bent around the base of each blade and matching holes drilled in the base of each blade using the triangle as a template. The blades are bolted to the triangle using some short M5 bolts. The corners off the base of each blade are trimmed so that they will line up without overlapping. Finally the triangular piece is attached to the threaded rod which forms the axle using a locking nut and a wing nut. The photo shows the assembled blade coupling.

## Pivot

We want the turbine to be able to pivot horizontally so it can turn into the wind. To achieve this the housing was mounted on a pivot made from a castor removed from a piece of old furniture. The wheel was removed and the can is fixed to the castor using a band of metal.

## Tail Fin

A tail fin was made from a piece of sheet metal and attached to the back of the can to help the turbine turn into the wind. A small hole was drilled in the side of the can where the castor attaches allows the wires attached to the stator coils to exit the housing. The castor is attached to a wooden support pole by means of a hole drilled vertically in the top of the pole. A cross piece provides a base for the support. Guy ropes are attached to the pole near the base using picture hooks to stablise the turbine when the blades are turning. These should be low enough so that there is enough clearance for the rotating blades when the ropes are fully extended. When the turbine is deployed the ropes can be secured to the ground to provide stability. The output from the dynamo is alternating current so a rectifier circuit is required to convert this to a direct current suitable for charging a battery.

We will be putting the plans on to the website for people to experiment with themselves and if you try it, let us know how you get on!

## LOOKING UP AS WELL AS AROUND


Climate impacts upon nature. We have amazing cloud formations and weather phenomena all over and in Greater Manchetster, mainly caused by the updraft of westerly winds over the Pennines. Clouds are classified in the same way as plants and animals, with Latin names, according to their

shape and altitude. One of the most easily recognised clouds – *Cumulus* – meaning heap – are white fluffy fair weather clouds, commonly seen in cartoons (e.g. The Simpsons) and children's drawings.

## CUMULUS

Cumulus clouds are the cotton wool puffs, with flat bases and cauliflower tops, which drift lazily across the sky on a sunny day. They generally form a few hours after daybreak and tend to scatter before sundown. They form on invisible columns of air (known as thermals) which rise from the ground as it is warmed by the Sun.

Most forms of Cumulus produce no rain or snow, and so are known as fair-weather clouds. When a Cumulus is fraying at the edges as it breaks up, having reached the ripe old age of 15 minutes or so, it is known as Cumulus Fractus.

The smaller Cumulus Humilis never produce any rain or snow, but large Cumulus clouds can produce light to moderate showers. When Cumulus build upwards through the morning they're a warning of heavy showers by the afternoon: 'In the morning mountains, in the afternoon fountains'.

If you were to add together all the droplets in a medium sized Cumulus cloud, they'd weigh the same as 80 elephants. Now that's amazing!

## STRATOCUMULUS

This is the most widespread of all cloud types in the UK, as well as many other regions of the world. Stratocumulus is a low layer or patch of cloud that has a clumpy base. The patches are either joined up, or have gaps in between. When the sky is overcast with a cloud base that appears to be low and the tones of the cloud vary from white to darker grey, you can be confident that you are looking at a Stratocumulus.

Stratocumulus clouds do sometimes produce rain or snow, but are generally quite light. Their main effect is of blocking out our sunshine. Often in the UK, Cumulus clouds can become more and more plentiful through the morning, spreading out and joining together into a Stratocumulus layer that covers the sky.

Sometimes you can see fingers of sunlight shining down through breaks in a Stratocumulus cloud. These are known as 'crepuscular rays'.

We hope to look at more types of clouds in future newsletters but there is another interesting article on climate on our own website: www.medlockandtame.org.uk.

## UPDATE ON THE BADGER CULL

A new poll recently published showed that 31% of the public support the cull of badgers because of the spread of Bovine TB. 40% oppose it and 29% say they don't know. The poll was a professional one, organised by YouGov, for the animal protection charity Humane Society International (HSI), whose UK director Mark Jones said: "The majority of the public oppose killing badgers, but the poll also indicates a significant level of indecision or confusion and I suspect that this stems from uncertainty surrounding the issue of whether or not a cull is 'science-led'. DEFRA has consistently claimed that its cull policy would be science-led and yet the scientific legitimacy of culling badgers

has been vociferously questioned by highly respected scientists and conservationists such as Lord Krebs [who led the 10-year trial] and Sir David Attenborough."

YouGov also asked people what they thought should be the main tool for dealing with bovine TB. Culling was backed by 12%, as was restricting cattle movements and reforming farm practices, and 16% didn't know. But the most popular choice by far was vaccination, which was backed by 60% of people in England.

Vaccination programmes are taking place right now. Trapping and injecting badgers is expensive, though it can hardly cost much more than trapping and shooting them. Back in 2010, the previous government said an oral vaccine would be ready by 2015, which could be left in bait, a much cheaper way to innoculate the animals.

*****STOP PRESS***Since commencing work on the newsletter the decision to cull the badger population has been terminated through active campaigns by many groups including The Badger Trust, as it has been established the decision to cull was not "science-led". **STOP PRESS****

**(For a full report on the above see: http://www.guardian.co.uk/environment/damian-carrington-blog)**

## SPRING FLOWERS IN THE UK

### Daffodil/Primrose/Bluebell/Snowdrop/Crocus

The UK has a number of beautiful common flowers which herald the arrival of Spring. Amongst the best known and loved are the Daffodil, English Primrose, Bluebell, Snowdrop and Crocus, each having had a long association with British history.

### The Daffodil Species

'A host of golden daffodils' was described by the English poet William Wordsworth (1770 -1850) in his poem "I Wandered Lonely As A Cloud".

The Daffodil is the common British name for the botanical genus Narcissus of the Amaryllis plant family. Daffodils are native to Europe, North Africa and Asia and mainly flower in the spring. Daffodils are traditionally golden-yellow in colour but wild Daffodils may be of varying colours. All of the Narcissus species have a central 'trumpet' surrounded by a ring of six floral leaves.

Daffodils are actually toxic as they contain an alkaloid poison, "Lycorine" in the bulb and the leaves of the plant. However, in traditional Japanese medicine, the daffodil root was used to treat wounds, in a mixture with wheat flour paste. Today, it is not the practice to use daffodils for medicinal purposes so don't try that at home!

The Daffodil is known as Narcissus in North America and has been referred to as jonquil in the past. It is listed as one of the many perfume ingredients in the perfumes of Marie Antoinette of France.

## The English Primrose Species

The English primrose is immortalized by Primrose Day, which was instituted on 19th April 1881, on the death of the British prime minister, Benjamin Disraeli. The Prime Minister's favourite flower was said to be the Primrose, and Queen Victoria sent a posy of Primroses to Disraeli's funeral.

The Primrose (Primula Vulgaris) belongs to the Primulaceae botanical family. It is a common sight in British hedgerows, woods and fields throughout April and May. English Primroses are small flowers which are traditionally pale yellow in colour. Medicinally, the English Primrose has been used to treat ailments such as rheumatism and gout.

An infusion of English primrose flowers was used for nervous disorders, as quoted by English herbalist John Gerard (1545 – 1612).

## The Bluebell Species

The Bluebell, originally known as "Hyacinthus", was traditionally associated with grief and mourning.

The perennial English bluebell is found in British woods throughout the months of April and May. Carpets of lavender-blue, bell shaped flowers create blue-bell woods in the spring months. There are many species of Bluebells found throughout Europe, in addition to the English Bluebell, including the Scottish, Spanish and Italian Bluebells. Bluebells are a protected species in the UK, under the Wildlife and Countryside Act 1981.

Bluebells were also originally known as Wild Hyacinth, not to be confused with fragrant Hyacinth (Hyacinthus Orientalis). In Elizabethan times, the Bluebell was called "Jacinth". The Bluebell does not have medicinal uses in today's medicine, however, the Bluebell bulb does have diuretic properties (makes one pee - but don't try this at home either!)

## Snowdrops

Galanthus nivalis - Although it is often thought of as a British native wild flower, or to have been brought to the British Isles by the Romans, it was probably introduced around the early sixteenth century and is currently not a protected species in the UK. (CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora, also known as the Washington Convention) is a multilateral treaty, drafted as a result of a resolution adopted in 1963 at a meeting of members of the International Union for Conservation of Nature (IUCN)). It was suggested by Andreas Plaitakis and Roger Duvoisin in 1983 that the mysterious magical herb moly that appears in Homer's Odyssey is actually snowdrop. An active substance in snowdrop is called galantamine. Galantamine (or galanthamine) can be helpful in the treatment of Alzheimer's disease, though it is not a cure. The substance also occurs naturally in daffodils and other narcissi.

## Crocus

Despite being part of the backdrop for spring woodlands, none of the crocus species in the UK are actually native, although many varieties flourish here.

So if crocuses aren't native to Britain – where do they come from? Depending on the specific species, they can be found growing wild across much of central and southern Europe, North Africa, the Middle East and China. Their glorious colours and tendency to bloom early made them popular with gardeners, and so they were brought over to the UK, where they (luckily) grow without seeming to affect other species. Gradually bulbs have made their way into woodlands to grow wild, perhaps because of gardeners dumping them after producing too many. One of the most common species now found growing wild is the Crocus Tommasinianus which has delicate lilac flowers and narrow leaves, and was first recorded in woodlands in 1963.

Crocuses come in a wide and appealing range of colours, from a distinctive mauve to pale yellow or white.

Crocuses are part of the Iris family and are perennial, which means that it lives for two or more years. Perennials typically flower during spring, and die back over the winter months, although certain types of crocus are in fact autumn bloomers, one of these being the saffron crocus, Crocus Sativus. Saffron crocuses are now entirely cultivated, as around 3,000 years ago humans began selectively breeding plants with longer stigmas. Since then saffron has been used in the treatment of 90 documented illnesses, as well as used as a dye and perfume. Romantic portrayals of saffron have included Cleopatra using it in her baths, and the Greek character Crocus being transformed into a flower.

## APPEAL

**We would like to make an appeal for herb cuttings. Recently, we have had to replace the centre of the herb tablet because of the deterioration of the wood and whilst doing this, have tidied up the various sections which are sadly lacking herbs!**

**If you are tidying your flower/herb beds and could give us some cuttings which we could plant, then please do! We are happy to arrange collection if needed. Just telephone 07989 147095 (Susan's number).**

## HOUSE PROJECT

This was our (massive) outdoor project this year. Not a glamorous one like our herb tablet, or our hide and wildflower gardens but a very necessary one which involved a huge amount of structural work and which, by the time you get this newsletter, will have reached a conclusion (hopefully!).

This involved erecting scaffolding to fully explore and investigate the rear gable wall extension. By the time the rendering was chipped away, it was obvious why there was so much damp in the kitchen and upstairs. There was virtually no cement between the brickwork which was in situ and many bricks were crumbling and broken. Inside the kitchen, when the beauty board was removed, we could see the light outside through the walls! This necessitated putting in place a damp course and injecting the walls with insulating material once bricks had been replaced and re-pointed.

This will then be plastered with a waterproof resin and then re-plastered. It has been guaranteed to last for 25 years. It means we can now get to work on sorting out and rebuilding the kitchen as damp had infiltrated the backs of the cupboards making it necessary to replace all the cupboards. More photographs will be included of healthier walls in our next newsletter!

**MTVCA invites you to a**

**POND DIPPING EVENT**

**Saturday 28 April at 2 pm**

**5 Oaken Clough Terrace, Ashton under Lyne OL7 9NY**

This is a FAMILY event so why not bring your grandchildren, nephews, nieces and or your neighbour's children along! **Jane Downall** is our expert and teacher once again for this event.
A microscope and identification books will be provided on the day so that you can examine what you net from the pond. Please bring waterproof footwear (in case soggy). Nets will be provided. £2 per person and £5 per family (to include tea/coffee/biscuits). Also, PLEASE PARK YOUR CAR at the Oldham Road end of Oaken Clough as parking is limited. Alternatively the bus service from Ashton no. 409 is a very frequent service and stops at the Top Dog pub just across from Oaken Clough.

**Table Quiz** – plans are currently underway for a table quiz in April/May so we will notify you of the final arrangements.

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