East Lothian Council Countryside Rangers

MUD in your EYE

March 2021

Wildlife

Bird song - a guide to identifying birds by sound Pages 6 to 7

Poetry

Heavens above

Kelp

Welcome to the 50th Edition of 'Mud in Your Eye'

We'd love to hear from you!
Email: ranger@eastlothian.gov.uk
or follow us...

@ELCrangers

East Lothian Countryside Ranger Service

Published by East Lothian Council's Countryside Rangers

Editorial

This is our 50th edition of Mud In Your Eye.

After heavy snow followed by freezing conditions in early February, there has been a significant change to the weather recently with a hint of spring in the air. March can still catch you out though with gales and sudden downpours. These early spring storms will often bring in large amounts of marine debris to our shores, so now is a great time for beachcombing. Our brief guide to kelp and some of its hangers-on will hopefully encourage you to have a closer look the next time you are on the beach.

Now is also a good time to get to know some of the bird songs of our resident species as they begin to attract mates and defend territories, before the migrants return and add to the cacophony of the dawn chorus. Our bird song article will give you a few pointers and get you started by comparing three members of the Tit family.

We've gone a bit highbrow in this issue with a look at geomorphology. This really describes everything that comes together to make the landscape we see today, from physics and chemistry to geology and ecology. Processes that have gone on for millions of years and are still happening now.

With our regular night sky feature, Heavens Above, two seasonal poems and a slightly more quirky quiz to reflect our 50th edition, there is hopefully something for everyone.

50th Issue Quiz

Because this is the 50th issue of Mud In Your Eye, we decided that it would be fun to have a quiz based around the number 50. There are no wildlife questions this time (we couldn't find any!), but we hope you enjoy it nonetheless.

1. **What is the 50th element in the periodic table?**
2. **What is 50 in Roman numerals?**
3. **What Paul Simon song has the number 50 in its title?**
4. **What is given as a gift on a 50th wedding anniversary?**
5. **What is the 50th state of the USA?**
6. **What is the 50th book of the bible?**
7. **What date is the 50th day of the year?**
8. **What point on the dart board is worth 50 points?**
9. **Which war began in 1950?**
10. **Which famous author, who won the Nobel Prize in Literature in 1948 said, "The years between 50 and 70 are the hardest. You are always being asked to do things, and yet you are not decrepit enough to say no".**

CLUE: The answer to question 5 is <u>not</u> East Lothian.

Answers can be found on page 13

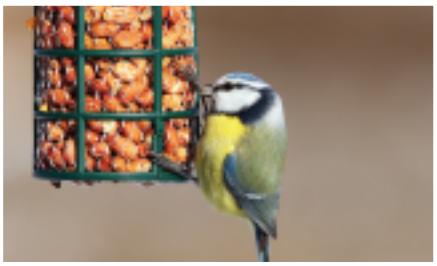
Poets' Corner

The first of our two poems is by Annette Wynne, an American poet who specialised in poems for children and published two Treasuries of verse between 1919 and 1922. The title neatly reflects this issue of Mud in Your Eye and is one that can be shared with young children. Perhaps even one they could memorise?
The second poem was sent in to us by an East Lothian resident, Jane George, and is a reflection on the interaction of birds that gather round a garden bird feeder. We rather liked it.

March and April by Annette Wynne

Stay in, stay in, O flowers, stay in,
Spring can't begin, it can't begin!
For wild rough March rides all about,
Don't put your little noses out,
Small heads should keep safe underground,
Or March will catch you riding round.

Come out, come out, O flowers come out!
Wild March is gone with rush and shout,
And April's eager now to play,
Come out, for March rode far away,
And Spring is dancing all around!
Come up, dear seeds, above the ground!



Feeding the birds by Jane George

The hierarchy of feathers at the bird feeder
Twitting and tweeting is a sight to behold
And you thought you had heard all
The backchat at the office water cooler!
Well you ain't heard nothing yet
Until you tune in to
The hawks and doves at the bird feeder.

Here comes beautiful Billy bullfinch
Displaying his bright red waistcoat and full of
Bully boy puffed up bragging rights.
Yes, he may have displaced those busy body tits
But only briefly before good old robin reliant,
The guardian of territorial rights, steps in to
Patrol his precinct and stamp his authority,
Allowing Mrs R only a quick peck now and again.

Then up pop those darting black and blue tits
Pecking and spitting out seeds so that a steady
Supply is spread amongst the foliage
In case they should get peckish later.
But watch out for the cooing plump pigeons
Ready to pounce on anything that comes their way.
The twitterati are all here
Preened and powerful,
Tuneful and tuneless.
But try taking a picture of all this politicking
And they fly off.
Posing to 'watch the birdie' isn't part of their game

In The Dead of Night

When darkness falls, we humans prefer to retreat to somewhere safe, warm (and lit!). In so doing, we leave the countryside free for animals to go about their business in relative safety. But just who is out and about once the lights go down?

The unmistakable barn owl.

Beginning with the smaller creatures, the cooler and damper conditions of night are a time when all sorts of creepy crawlies can feed without danger of cooking in the sun. Slugs and snails, which we tend to think of as slow-moving creatures, will, on spring evenings, happily slime all the way up and down trees to reach the ripening leaves. Woodlice will scuttle around nibbling on dead wood, fearful of only one thing. With (relatively) huge fangs, the red-bodied spider *Dysdera crocata* is perfectly adapted to catching woodlice, and goes a-hunting during the wee hours.

Moving up in size, small mammals have adapted their senses for the dark. Mice have excellent eyesight, shrews have great hearing, whilst smell is the best-developed sense for voles and hedgehogs. Of course, there are some for whom sight is not a problem – although bats have quite good vision, but don't use it for hunting since they have developed a sense called echolocation. They 'bounce' sound waves off objects as they zip about, 'translating' these signals to develop a map of the landscape about them. They also use this device to hunt down their dinner - moths and other flying insects.

Excellent hearing and superb eyesight provide the means for owls to go out hunting after dark. Owls actually have lop-sided ears as a mechanism to help them pinpoint prey. This, and silent wing-beats, ensures many mice and voles are caught unawares.

Although we may understand the term nocturnal as meaning those animals that come out at night, many creatures restrict their activities to dawn and dusk. They are more correctly termed 'crepuscular'. There's a word to introduce into polite conversation to astound your friends!

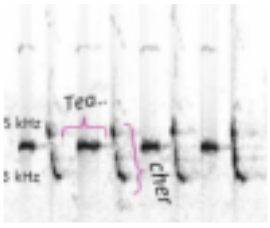
The less appealing (for most) Large red slug.

Confusion Corner

Telling birds apart by their song can seem like a bit of a black art, but in reality learning the skills to identify species from the 'white noise' has never been easier or more accessible. It is a skill that stays with you for life and can bring the wildest of nature to mind even in the most urban of environments

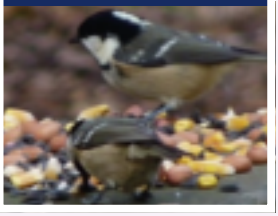
GREAT TIT

Two tones repeated many times. Quite powerful and punchy sounding.
Sounds like: "Teacher, teacher"
Brings to mind a squeaky car tyre foot pump.

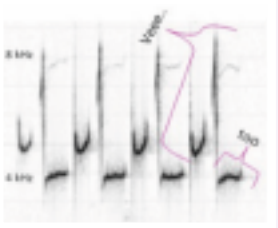


Adapted from: Simon Elliott, XC598524.
Accessible at www.xeno-canto.org/598524.

COAL TIT

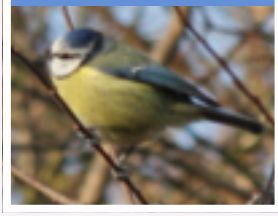


More drawn out, thin sounding rapid two tone song
Sounds like "Veeeto veeeto"
Perhaps best likened to a drawn out old fashioned bike tyre pump (higher pitched than the great tit 'foot pump'.)

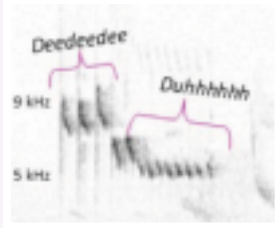


Adapted from Simon Elliott, XC598509.
Accessible at www.xeno-canto.org/598509.

BLUE TIT



High pitched of 2 or 3 notes ending with a lower pitched trill.
Sounds like "dee dee dee duhhhhhhh"
… a wee bit like a higher pitched version of Beethovens 5th Symphony



Adapted from Anthony McGeehan, XC218739.
Accessible at www.xeno-canto.org/218739

Confusion corner – Continued

This journey is best begun with the avian regulars of your closest garden/park, unless of course you want to impress your soon to be ex-friends in the pub with the comedic calls of puffins or eider.
By concentrating on the sounds of the most commonly heard dawn chorus protagonists, of which only a handful account for a lot of the noise on a spring morning, you will quickly get to grips with the different characteristics, and soon you'll be following up on the one that sounded different.

Fortunately most of our birds will have one typical song they sing regularly when in adulthood (although certain species can have quite a repertoire, even imitating to great effect other birds they have encountered). Great-tits, coal tits and blue tits fall into this category and are a good starting points as they are never too far away to be heard, and will continue singing throughout much of the year.

There are a wealth of resources at your finger tips to help.

- Internet resources such as the RSPB website, Xeno-canto (used above), audio-id apps such as 'Bird Song Id UK' where you can record a singing bird and get an identification, or 'Pocket Birds' which has bird photos as well as recorded songs and calls.
- book/cd combination
- joining a walk with an expert to hone your skills.

All this means it has never been easier to confirm or correct an ID. The only trouble is that once acquired you can't switch this skill off; and so the 5am involuntary brain whirring bird ID from your bed begins!

Heaven's Above – Ursa Major or The Great Bear

Ursa Major or The Great Bear is the third largest constellation in the night sky and one of the best known. Its proximity to the North celestial pole means that it is visible in the night sky all year round. It is perhaps best known for the seven bright stars that make up The Plough, the saucepan shaped group that form the tail and part of the back of the bear itself. Such a group of stars within a constellation is called an asterism (see if you can get that into a conversation).

The Plough is a good starting point for finding other stars and constellations in the night sky. If you imagine it as a saucepan, then the two stars Merak and Dubhe form the end of the pan. They are known as the pointers, because if you draw a line between them and continue it onwards, it will lead you to Polaris, the North Star in the constellation of Ursa Minor. Continuing the line beyond Polaris will lead you to the W shape of Cassiopeia. A leak in the bottom of the saucepan will cause the contents to fall onto the back of Leo the lion, the brightest stars of which form a backwards question mark which make up the head and front paws of the lion. If you follow the curve of the saucepans handle and continue it downwards, you will reach the bright star Arcturus in the constellation of Bootes. Arcturus is beginning to appear above the horizon now, heralding the coming of spring.
The constellations we see in the sky are not real groupings of stars, we just like to make patterns of all the dots! For example, although two of the main stars in Orion, Betelgeuse and Bellatrix, appear to be close to each other, they are actually 430 light years and 250 light years from us respectively. Clearly very far apart from each other and so not related at all. They are also moving in different directions with respect to us, so in a few thousand years Orion will cease to be an observable constellation. Returning to The Plough, however, five of the brightest seven stars do appear to form a related group.
They are part of what is known as the Ursa Major moving group and are between 79 and 83 light years away and are all moving in the same direction.

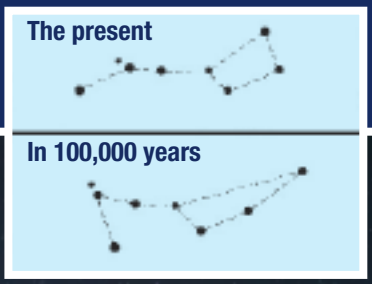
Ursa Major or The Great Bear – Continued

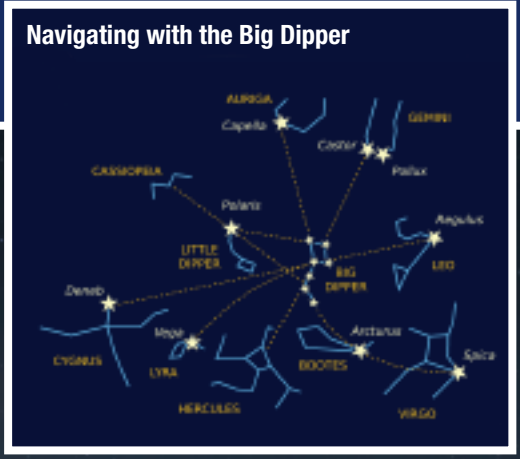
The two stars at the opposite ends of The Plough, Alkaid and Dubhe, are not part of this group and are in fact moving in the opposite direction. So even The Plough will eventually disappear as an observable feature.

Mars will be a focus for many of us over the next few months, with three missions arriving there this February.

- The Mars Mission Orbiter, Hope, from the United Arab Emirates will be monitoring weather cycles in the lower atmosphere and will be trying to learn why the Mars climate has changed so much from its distant past
- Tianwen-1 from the China National Space Administration will land on the surface with a rover to search for possible signs of life both now and in the past
- NASA's Perseverance rover will be looking for life signs too, but will also be collecting rock samples and taking detailed photos with an array of cameras. It will also boast a small helicopter that can fly ahead of the rover and scout out terrain that the rover can't access.

Exciting times!





Geomorphology

Geomorphology is the study of landforms, landscapes and the processes that produce them. It's got a bit of everything, being a combination of geology, geography, hydrology, climatology, ecology and all sorts of other ologies thrown in. Oh, yeah, and chemistry. And physics.

Craigleith and the Bass Rock.

Ridged shore platform at Winterfield.

The processes involved can be constructive, e.g. the deposition of sand to form a beach, or destructive, e.g. the erosion of a rock surface by a river. There is a large cyclical element to these processes - the material produced by erosion forms the sediment that will later be transported and deposited, which may eventually reform into solid rock.

A quick look at some of the islands in the Forth demonstrates how the relationship between geology and erosion shapes our landscape. Craigleith, Bass Rock and the Isle of May are very different in appearance. These islands are all formed from igneous rock – that is, rock formed from cooled magma. These igneous rocks are harder and more resistant to erosion than the surrounding sedimentary rock, so the islands remain whilst much of the rest of the landscape has been eroded away.

The islands' different shapes arise from their different formations. Craigleith is a laccolith, created when an upwelling of magma forms an underground dome between sedimentary layers. This gives the island its slightly elongated, rounded outline. The Bass is a volcanic plug, the remnants of magma that cooled in the vent and crater of an ancient volcano. As a result, it has a relatively tall and thin appearance. In contrast, the May is wide and flat – this is because it is formed from a structure called a sill. A sill results from magma being injected horizontally between rock strata.

Things get more complicated if you start to think more about erosional processes and how they create differences in landscape. As mentioned, Craigleith is a laccolith, but so is Traprain Law. Similarly, Bass Rock and North Berwick Law are both volcanic plugs. However, both Laws are largely the product of glacial erosion and, latterly, the effects of wind, rain and frost. The result is that both hills have sloping sides, albeit steep and rugged in places. In the case of the islands the main agent of erosion is undercutting by waves, causing the rock above to collapse, leading to the formation of cliffs.

So, similar geological structures produce different landforms as a result of varying erosional processes. Which is also why you can have Exmoor ponies on the Laws, but wouldn't want them on the Bass.

Geomorphology – Continued

Apart from the fact that they'd step on the gannets.
On a smaller scale the relationship between form and process can be seen by looking at shore platforms. These are the rocky bits of the intertidal shoreline that are so much more interesting than those boring sandy beaches. The main erosional forces here are, not surprisingly, to do with wave action. The physical force of waves can break up the rock surface, leading to the quarrying out of sometimes large lumps (technical term) of rock. In addition, sand, pebbles and boulders are moved back and forth by the waves, scouring the platform. All things being equal, these forces produce a shallow sloping platform across, or beyond the tidal range. However, all things aren't equal – the rock type and structures play a huge role in the specific form of the shoreline.
Take Yellowcraig for example, where the rocky shoreline is made up of a dark, basaltic igneous rock. The lack of internal structure to this rock means there are no real weaknesses for erosion to pick out. As a result the shoreline is, frankly, all over the place, with uneven surfaces and large boulders. Plus it's really tricky to walk on. Compare that with the Whitesands shoreline, made up of limestone and other sedimentary strata.

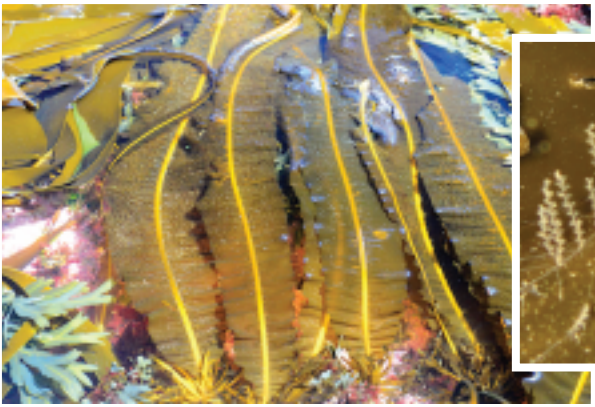
Shallow sloping shore at Whitesands.

An uneven, unstructured shoreline at Yellowcraig.

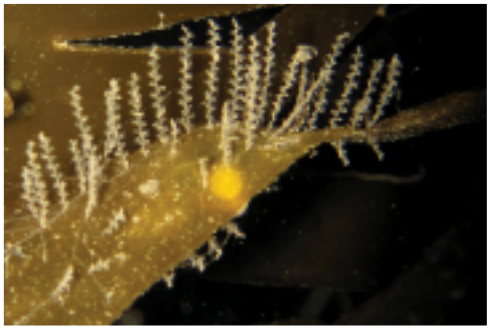
Here the waves scour the surface of each exposed layer of rock, creating a profile which is gentle and virtually follows the shallow dipping strata. In other sedimentary areas where the rocks dip at steeper angles the waves can pick out less resistant layers and weaknesses between them, producing a sharply ridged platform.
Geomorphology isn't just about abstract concepts – it is tied into ecology and human geography. On the smaller scale, features such as shore platforms are home to diverse communities of plants and animals. The shape of the platform greatly influences things such as exposure to wave action and currents, which in turn affects which species can thrive in a given area.
For us humans the broader landscape has been hugely important. Historically, high points such as Traprain Law were easily defensible and so were highly valued for settlement. The relationship between landscape and drainage also has influenced where we live – very many early communities were sited near the rivers which provided them with food, water, transport and, let's be honest here, somewhere to dump your waste. If you're still not convinced, erosion of rock produces soil and where would we be without something to grow our crops in?
In the same way that we are part and parcel of the ecosystems that we live in, we are intrinsically linked to our landscapes and the forces that produce them.

Kelp

The term kelp was once used to refer to many types of brown seaweed found on the seashore. Today, though, we tend to reserve the term for those species of the larger fronded algae that occur just below the low tide level. Here in East Lothian we have four main species to look out for. These are Oarweed *Laminaria digitata*, Cuvie *Laminaria hyperborea*, Sugar kelp *Saccharina latissima* and Dabberlocks *Alaria esculenta*.



Alaria esculenta.



Obelia on kelp frond.

Now it may have occurred to some of you that to see these species in their natural habitat, you would have to either wait for an unusually low tide, or perhaps go snorkelling, which would depend upon your wish to experience the cold waters that surround our coast! At this time of year though, we often get storms associated with the Spring equinox which will break off the kelp fronds, or even drag whole plants away and wash them ashore, sometimes in large quantities. So this time of year is a good time to go beachcombing.

First, let's identify the four species mentioned above.

Oarweed is a dark greeny-brown colour with a thick stem or stype with long fronds that are split into many 'fingers'. It can grow quite densely, attached to rocky sea beds with a root-like holdfast.

The stype is oval in cross section and bends easily.

Cuvie is very similar to oarweed, but has a thicker, circular stype, rougher than oarweed, which will snap when bent.

Sugar kelp has a long single frond with no midrib on a short stype. The frond is crinkled and has a wavy edge.

Saccharina latissima.

Kelp – Continued

Sea mat on kelp.

Laminaria digitata.

Dabberlocks has a short stype and a long single frond, but with a prominent midrib. The wavy frond can sometimes be so tattered and torn that only the midrib remains.

Both oarweed and cuvie are worth a closer inspection if you find them on the beach. Both the stype and fronds of these algae play host to a number of species. Two of the more common are Obelia and Membranipera.

Obelia, sometimes known as sea fur, is a colonial hydrozoan. The colony is made up of individual polyps in thin cups supported by branching stems. The overall appearance is of a furry, plant-like growth over the surface of the kelp frond. Obelia is related to sea anemones and jellyfish. It has a lifecycle that includes a free swimming medusa which looks like a tiny transparent jellyfish.

Membranipera, or sea mat, is a bryozoan that forms thin encrusting grey mats on the kelp fronds. The colony is made up of individual rectangular 'cells' that together make up a lace like pattern.

These cells are called zooids and each one contains an individual with small feeding tentacles that it uses to extract plankton and tiny organic matter from the water. The colony can grow quite quickly and can produce spiny outgrowths. Both factors help to reduce the impact of its main predator, sea slugs.

The holdfasts of kelp can support a variety of small marine life, from polychaete worms to amphipods, small molluscs and sea squirts. By the time these algae are washed ashore, however, these creatures will have largely gone. So snorkelling is really your only option here! But even when washed ashore, the kelp will still play its part in the ecology of the seashore. Large numbers of sandhoppers, types of amphipod that are able to use their tails to spring into the air, will feast on the washed up fronds. Kelp flies are also attracted to this sudden glut of food. Eventually, debris left over will be blown into sand dunes and provide much needed organic material for marram grass and other sand loving species.

Quiz - answers

1. **Tin**
2. **L**
3. **50 ways to leave your lover**
4. **Gold**
5. **Hawaii**
6. **Phillipians**
7. **19th Feb**
8. **Bullseye**
9. **Korean War**
10. **T.S. Eliot**