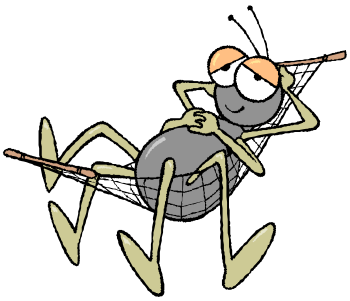
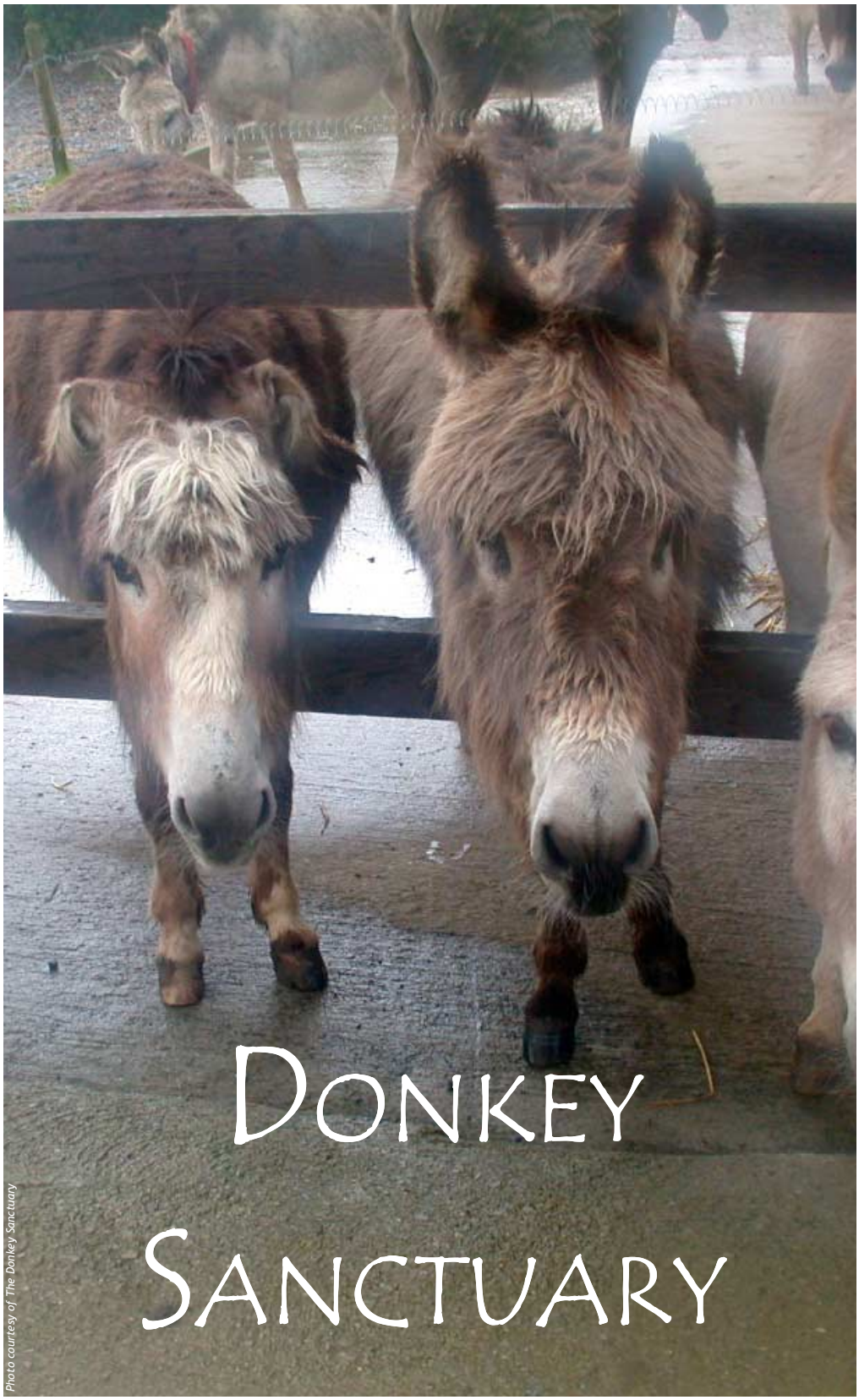


Nature's Web

Issue No. 16 Winter 2009

Inside This Issue...



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Editor's Page

Rain, Rain Go Away, Come back Another Day!

Like many places around the country, we had record rainfall on Sherkin Island in the month of November. Not only was it the wettest November since the Marine Station started recording rainfall in 1972 but it was also the wettest month of all in that time.

When we talk about the weather it's not surprising that a nursery rhyme or two might pop into our heads, as quite a few have a weather theme. For example, *"Red sky at night, shepherd's delight; red sky in morning shepherd's warning"* often comes to mind when we see a beautiful red sky at night. On rainy days, we might think of some of the rhymes on this page. Nursery rhymes are great ways to learn a number of skills. As younger children they teach us to remember words, understand rhyming, improve our memory and speech. Even as we get older we still find they can be great fun, especially some of the tongue twisters!

Rain, rain, go away,
come again another day;
Little Johnny wants to play.
Rain, rain, go to Spain,
And never come back again.

The south wind brings wet weather,
the north wind wet and cold together.
The west wind always brings us rain,
the east wind blows it back again.

Whether the weather be fine,
Or whether the weather be not,
Whether the weather be cold,
Or whether the weather be hot,
We'll weather the weather
Whatever the weather,
Whether we like it or not!

Doctor Foster went
to Gloucester
In a shower of rain.
He stepped in a puddle
Right up to his middle,
And never went there again.

It's raining, it's pouring;
The old man is snoring.
He bumped his head
And he went to bed
And he couldn't get up
in the morning.

Seafood Recipe

Family Fish Pie

Photo courtesy of BIM

What you need:

- 750g fish of choice - salmon, smoked coley, pollock - cut in cubes
- 100g butter
- 100g flour
- ½ litre milk
- 2 leeks - roughly chopped
- 50g grated cheddar cheese
- 4 large potatoes - cooked and mashed
- Little salt and pepper

What to do:

- Pre-heat oven to 190°C/Gas mark 5.
- Heat butter, gently fry leek until soft.
- Place fish in milk, simmer gently for 5 minutes. Remove and place in oven-proof dish. Season and spread leeks on top.
- Melt butter, stir in flour gradually. Slowly whisk in milk, continue to cook over low heat, stirring continuously, until the sauce thickens.
- Add grated cheese.
- Pour sauce over fish. Spread mashed potatoes on top.
- Bake for 25-30 minutes.
- Serve with fresh vegetables or crisp green salad.

Serves 4

Brought to you by BIM.
For more recipes visit www.bim.ie

Welcome to the Winter Edition of Nature's Web!

Dear Reader,

Welcome everyone to the winter issue of Nature's Web. We are delighted to feature Paddy Barrett of the Donkey Sanctuary in this newsletter. This is a wonderful charity that has helped over 2,800 Irish donkeys over the last 22 years. From Captain Cockle we learn about marine worms and we also take a look at the land variety (as well as the computer kind!).

You can check out nature news from around the world on page 11 and enjoy a giggle with the jokes on page 13.

We would love to hear your views, comments and suggestions for future articles. Have a good read!

Susan & Audrey

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THE ROBIN

English: European Robin
Latin: *Erithacus rubecula*
Irish: Spideog

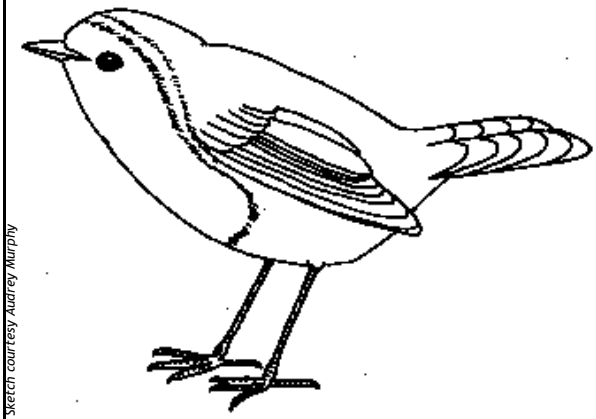
The robin is probably the most familiar and most easily recognised garden bird. It has a striking red face and breast, with a brown back and wings, and a white belly. It can appear quite plump, especially in cold weather when it fluffs up its feathers. In the garden it can often be seen hopping along the ground and will often sit motionless close to you while you are gardening. The female robin builds her nest in walls, hedges, sheds, trees, ivy and even tin cans, and will also use open-fronted nestboxes. The nest is made from moss, dead leaves and grass.
The robin is very territorial. This means that it does not like other robins in its area and will defend it fiercely. You are therefore unlikely to see more than one robin at a time in a small garden.
If another robin comes too near it puffs up its red breast and sings out in alarm to warn the trespasser off. When alarmed it makes a "tick" sound, which can sound like an old clock being wound up. At other times it can either sound sad or make a pretty warbling song.

Photo courtesy of Robbie Murphy

Fact File

Plumage Colour: Red face and breast. Brown back and wings, with white belly.
Height: 12.5-14 cm
Diet: Worms, insects, snails and fruit.
Habitat: Gardens, hedges, parks and woodlands.
No. of eggs: 3-6

Colour Me!



Sketch courtesy Audrey Murphy

Robins, but no relation!

There are other birds known as "robins" but though some have a similar red breast, they are not related to the European Robin. Such birds include the American Robin (which is more closely related to the thrush) and the Australian red robins (more closely related to crows).

Top right: American Robin (*Turdus migratorius*). Bottom right: Rose Robin (*Petroica rosea*) from Australia.

Courtesy of Dori CC-A-SA-3.0 US

Courtesy of Avicedd CC-A-SA 3.0

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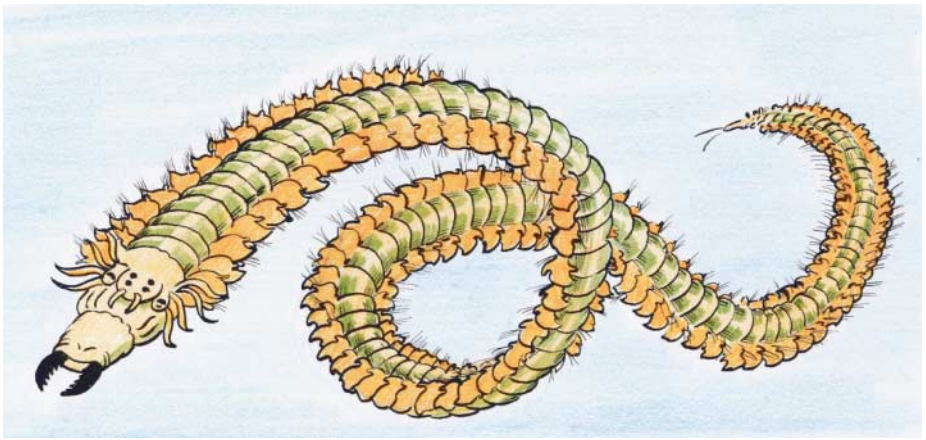
The Wonderful World of Worms...

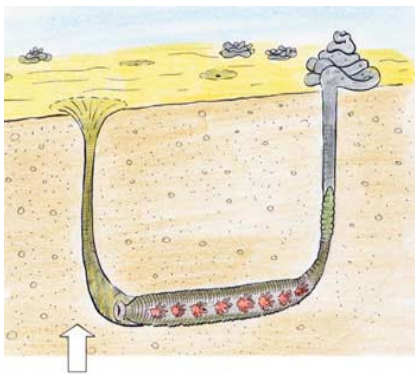
The worms you find under rocks on the shoreline or when digging in the sand, are most likely to come from the animal group Polychaeta (pronounced "Polly-keeta"), which means "many hairs".

Worms have no bone and no skeleton, which makes them very flexible, and they rely on pumping water through their bodies to make them rigid.

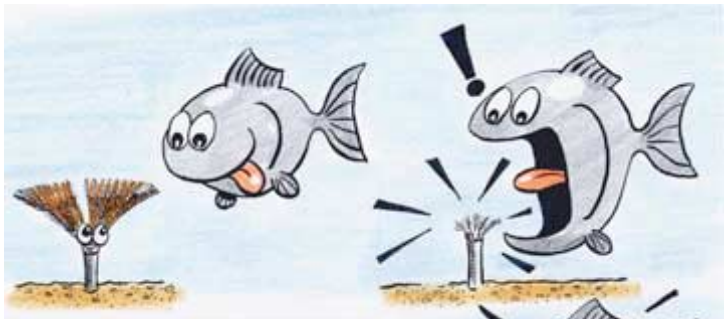
Scientists classify the Polycheata into two main sub-groups: the "errant" polycheates - that actively swim about looking for food (just as the "Knights Errant" of old used to ride around looking for adventure – and the "sedentary" polycheates, which prefer to stay at home and let the food come to them.

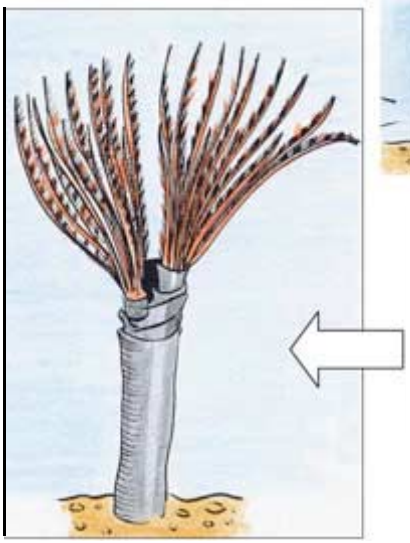


Errant polycheate worms, such as the Common Ragworm (*Nereis diversicolor*) shown above, have well developed heads with eyes and jaws. They also have paddles – called "parapods" – on either side of each segment to allow them to move swiftly through the sand or even to swim in open water (although they prefer to keep under cover to avoid other predators). Ragworms can grow to around six inches long and prefer to live in burrows. Here they spin thin webs with mucous from their mouths, which they use like old-fashioned fly paper to catch tiny floating animals – sucking back the mucous web, animals and all. Be careful if you find them when you are digging in the sand however, because the jaws can give you a nasty bite!



The Common Lugworm (*Arenicola marina*) shown above, is a **sedentary polycheate**. It lives in a U-shaped burrow and can be detected on sandy shores by the little cone shaped burrow at the head end where water is sucked in, and the squiggle of sand it pushes out at the other end, once it has sucked all the tiny animals and other food out of it. Lugworms push out sand every 40-45 minutes. If you stand still on the beach and watch, you may even see it!





Other sedentary polycheates, like the Peacock Worm *Sabella pavonina*, have complex and beautiful gills which they use not only to breathe underwater, but also to catch food. To protect themselves, they are very sensitive to movement and can zip down into their tubes at the slightest hint of danger.

Captain Cockle's Log

Copyright John Joyce 2009

Log onto www.captaincockle.com

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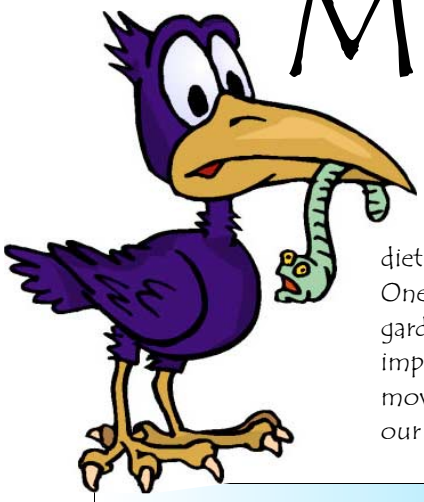
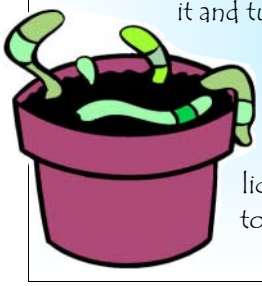
More Worms



On page 4, Captain Cockle tells us all about marine worms, but worms are found on land too. Worms are invertebrates (they don't have a backbone) and form part of the diet of many animals. This makes them an important link in most foodchains.
One worm that most of us have seen is the earthworm, which can be found in the soil in your garden. (The next time the garden is being dug, see if you can find one!) Earthworms are very important for creating soil. They feed on debris, such as rotting leaves and plants. This food moves through their body and what comes out the other end contains nutrients that help build our soil!

What's a Wormery?

A wormery is a special bin that contains special types of worms. When food, such as rotten vegetables, stale bread or eggshells, are added to the bin, these worms will digest it and turn it into rich compost, which can then be used in the garden. The wormery will also produce a nutrient-rich liquid which can be used to feed plants.



Nasty Worms!

Some worms are of real benefit to us, such as earthworms. However there are worms that are not so good. Some are parasites, which means they live in other animals and cause them harm. Farmers in particular can have an awful time trying to rid their animals of worms. For example, leaf-shaped worms known as liver flukes can live in the bile-ducts of sheep, making them very sick and sometimes causing them to die.
One of the worst parasitic flatworms is the tapeworm, which lives in the intestines of some animals. It has no mouth and absorbs food through the walls of it body.

The longest worm – One of the longest animals in the world is the giant ribbon worm that lives on the lower shore, coiled in a gentle knot. Specimens measuring 5 - 10 m are not uncommon but a specimen measuring 30 m (100ft) has been found and it is thought these worms might even reach 60 m in length if they stretch their body. Although they can grow very long, they are only about 5-10mm wide. These worms are found throughout northwest Europe and are usually found under stones on mud and muddy sand.

When is a worm not a worm?

Often the name "worm" is used to describe the young of some insects, such as beetles (grubs) and flies (maggots). Even the silk worm is not a worm. It is the caterpillar of a moth.
There is another type of "worm" that isn't even an animal! If you are reading this newsletter, then it's likely you are sitting at a computer. Computers, especially those connected to the internet, are open to attack from "bad" files known by such names as *worms*, *viruses* and *trojans*. These "bad" files could copy information from your computer, use your computer without your permission or even destroy everything on it! So, though your computer may be infected by a *worm* or a *virus*, it doesn't mean that there is a worm wriggling around inside or a virus needing to be cleaned with disinfectant!

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Barking up the Right Tree!

By Jenna Poole

Many Irish trees are easily recognised by their bark, especially in winter when they have lost their leaves and fruit. Cherry trees tend to have very shiny bark that is a deep red-brown. This bark is very thin and peels off in horizontal strips when new bark is produced underneath. Birch bark is also very thin and papery in texture, and that of the Silver birch is a distinctive silvery-white with deep, diamond-shaped, black markings as the tree ages.

Beech, which is not native to Ireland but is widely planted in gardens and parks, has a very smooth, silvery-grey bark. It has very few imperfections but is often covered in green dusty algae (a type of fungi). Another planted tree of parks and gardens is the Sweet chestnut, whose trunk has a fantastic twisted effect where the bark forms in deep, spiral grooves.

Perhaps Ireland's most well known tree, the Oak, has a classic grey bark with cracks formed in rectangular shapes as it grows wider and larger. Most conifers, such as the Scot's pine and Norway spruce, also have cracked and flaky barks, but they tend to be a bright red-brown to dark brown.

Courtesy of USGS

***Melaleuca quinquenervia*, one of the 'paperbark' trees.**

The amazing fireproof bark!

The bark of the giant Redwoods on the West coast of North America is believed to be completely fireproof. These phenomenal trees grow to be almost 100m tall and around 10m in diameter! Their bark can be as much as 60 cm thick and helps protect them from forest fires that occur in the region.

Courtesy of Mike Murphy CC-BY-SA-2.0

"Grizzly Giant" Giant sequoia (redwood) in Yosemite National Park, USA

Uses of bark

Many dyes were once made from the bark of common trees in Ireland, for example the bark of birch trees was used for leather tanning and for preserving fishermen's lines, while that of apple trees could dye wool yellow. Bark is also made into paper.

As explained above, all bark is effectively a type of cork. But the cork we use for wine bottle and notice boards is made from the bark of the Cork oak (see below), which grows mainly in the Mediterranean and North Africa.

What happens if bark is damaged?

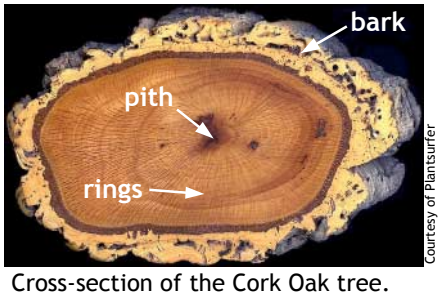
Due to the protective nature of bark, any damage caused to it can be fatal for the tree or shrub. Many plantations have to be fenced off to protect the trees from grazing deer and rabbits, which as well as eating the young leaves can also strip a tree of its bark. That is why you may have seen freshly planted trees with protective plastic tubes around the base.

Other organisms take advantage of already weak trees and cause further damage by entering underneath the protective bark layer. For example, Dutch elm disease, responsible for the death of thousands of Elm trees in Ireland and Britain, is spread by a species of beetle that burrows under the bark exposing the sensitive inner layers.

How is bark formed?

The main difference between trees and shrubs and most other plants is in the way the main stem (or trunk) gets wider and stronger each year. In the very centre is the **pith**, this is what forms the stem of all other plants. Around this is a layer of **cambium**, the cells of which divide every year to produce **xylem** on the inside and **phloem** on the outside. Xylem transports water and minerals within the stem, and phloem transports food and energy.

If a tree is cut down you can see these obvious rings of annual growth, and with each year's growth the trunk expands and the new bark cells are grown on the very outside to protect the inner rings of cells. The outermost layer of bark is in fact a type of cork and is made up of dead cells, giving bark its gnarly effect.



Courtesy of Plantsurfer

Cross-section of the Cork Oak tree.

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All in a Day's Work

Paddy Barrett – The Donkey Sanctuary

PROFILE
Paddy Barrett works for The Donkey Sanctuary at Liscarroll, Mallow, Co. Cork, as Public Relations Manager.

Photos courtesy of The Donkey Sanctuary

Have you always been interested in what you do?

I was born into this environment; there were always donkeys here at the farm since 1924. Donkeys were very much part of my growing up.

What training did you do to get where you are today?

In 1981 I took over from my late father Garrett Barrett, who was employed as an inspector for the Irish Society of The Prevention of Cruelty to Animals. I received training in this field at the time and in 1984 I went to train on donkey care at The Donkey Sanctuary in Devon England. In 1987 I took on the role as Manager for The Donkey Sanctuary in Ireland. Initially from a staff of three the sanctuary grew to employ staff in excess of 50 full time permanent staff. Staff are employed in various departments. eg. Farm Staff, Veterinary Staff, Welfare Staff and Administration Staff.

Last year a Welfare Manager and Head of Operations were appointed after I decided to concentrate more on Public Relations and promoting the work of The Donkey Sanctuary in Ireland.

Why are so many donkeys in need of care?

At the beginning of the last century, there were approximately 300,000 working donkeys in Ireland. They were very useful animals, carrying peat from the bogs, churns of milk to the creameries and performed many more tasks as well. However by the early 1950s the donkeys became victims of modernisation and many were turfed out onto the side of the road to fend for themselves. In the last 22 years there has been a vast improvement in donkey welfare in Ireland.

How many donkeys has The Donkey Sanctuary helped over the years?

Over the past 22 years 2,800 donkey and mules have been rescued from all over the country. Many of these are in terrible condition i.e. neglected, distorted feet and some are very emaciated with lice infected coats.

What is a day in your life like?

At present a day in my life as Public Relations Manager is mainly giving talks and power point presentations to National Schools, Colleges (mainly Civil, Social and Political Education classes) Institutions, and Day Care Centres etc. Also giving interviews on radio and television documentaries relating to donkey care.

What is your main aim?

My main aim is to promote the care and welfare of donkeys and mules around the country by educating the public.

What is the best thing about your job?

The best thing about my job is being able to rescue and rehabilitate the very neglected and abandoned donkeys, and witnessing their improvement. I love my job. It takes me to every county in the country.

What is the worst thing about your job?

The worst thing is seeing the terrible conditions some donkeys are subjected to either by ignorance or deliberate cruelty.

Do you work alone or as part of a team?

I work as part of a team.

What advice would you give someone wanting to do your job?

I would advise them to have good communication skills and an ability to get on with the public.

What would you do if you weren't doing what you do?

I probably would have been involved in the building industry.

What is best piece of advice you have ever had?

To have respect for others.

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Wordsearch

Nature's Web Wordsearch

Try out this giant wordsearch containing words found in this issue of the newsletter.

W N Y E L E P H A N T I V O R Y N W
Q X U J E A R T H W O R M R U U I I
B D Z R B L W K H N T W H Y N X B L
F L O T S A M A N D J E T S A M O D
F E Y N Y E S U J N R T M O A P R L
E R I X K Y R F D R J R F R R A N I
K R A P D E R Y I L O Z I Z R D A F
R V O S H D Y N R W D N X E J D E E
V O I H A S G S G H E E T B E Y P P
Y P C R S G I U A H Y A F A N B O H
H H J K U Y L F A N W M B R I A R O
G G B L H N D B Y R C E E K L R U T
L M L O O Y I D E L P T V R D R E O
D S S M E T R D U L I N U Q N E N S
N E M G A B N A E M S M D A A T C F
O O I T O U Q W X P L I A X R T O T
C F S E R O H S Y K C O R F T Y H P
D N A L E R I G N I R U O T S J G U

Bark

Common Lugworm

Donkey Sanctuary

Earthworm

Elephant Ivory

European Robin

Family Fish Pie

Flotsam and Jetsam

Herring Gulls

Marine Habitats

Muddy Shore

Nursery Rhyme

Paddy Barrett

Rock Hyrax

Rocky Shore

Strandline

Touring Ireland

Underwater

Wildlife Photos

ANSWERS: (Over,Down,Direction): Bark (14,9,S) Common Lugworm (1,17,NE) Donkey Sanctuary (2,3,SE) Earthworm (5,2,E) Elephant Ivory (4,1,E) European Robin (17,13,N) Family Fish Pie (14,17,NW) Flotsam and Jetsam (1,4,E) Herring Gulls (13,3,SW) Marine Habitats (16,4,SW) Muddy Shore (10,15,NW) Nursery Rhyme (2,1,SE) Paddy Barrett (16,5,S) Rock Hyrax (1,8,SE) Rocky Shore (13,17,W) Strandline (15,18,N) Touring Ireland (14,18,W) Underwater (6,16,NE) Wildlife Photos (18,1,S).

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Colour In

A Spot of Rain!

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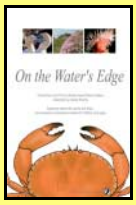
Learn More

A Beginner's Guide to Ireland's Wild Flowers

Have you ever wanted to put a name to the wild flowers you see about you every day, or while on a walk, or on holiday? With the help of this pocket-sized guide, you will be able to do just that. Beginners of all ages will be introduced to the many common wild flowers found around Ireland. *206pp*

Only €8.50 including postage

Sea Life DVD: *"On the Water's Edge"*



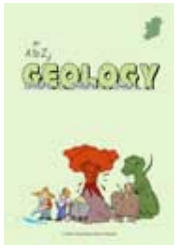
Sherkin Island Marine Station has launched a dvd called *'On the Water's Edge'*. It is made up of a short film on life beside the sea and is presented by Audrey Murphy. It includes 6-10 hours of interactive material for children of all ages. *Available from: Sherkin Island Marine Station, Sherkin Island, Co. Cork. €13.30 including postage.*

A Beginner's Guide to Ireland's Seashore is a pocket-sized guide, suitable for beginners of all ages. This book will help you to explore the wonders of marine life found on the shores around Ireland.

Only €8.00 including postage

Only €2.10 each including postage or €12.00 for all seven! *32pp each*

Sherkin Island Marine Station has published a range of colouring books, guides and activity books for children. Each 32-page *Colouring & Guide Book* gives you the chance to colour, identify and learn about the wildlife around Ireland. *My Nature Diary* contains lined pages to fill in a daily record of sightings and nature news.



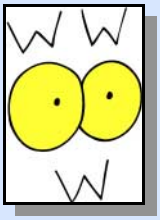
"An A to Z of Geology" explores the fascinating world of rocks and geology – a world of volcanoes, tsunamis, earthquakes, diamonds, gold and even dinosaurs! Produced by Sherkin Island Marine Station, in association with the Geological Survey of Ireland, the book aims to highlight the importance of geology in our everyday lives.

Only €5.99 plus €1.00 postage

To order books, send your name and address along with a cheque or postal order made payable to Sherkin Island Marine Station to:

Sherkin Island Marine Station, Sherkin Island, Co.Cork. Ireland.

Visit: www.sherkinmarine.ie



Useful Web Addresses

There are lots of websites to be found on the internet that will give you further information on topics we have covered in this newsletter. Here are a few that may be of interest:

Nursery Rhymes: www.enchantedlearning.com/Rhymes.html

The Robin: www.birdwatchireland.ie/Default.aspx?tabid=436
www.rspb.org.uk/wildlife/birdguide/name/r/robin/index.aspx

The Wonderful World of Worms: www.mesa.edu.au/friends/seashores/worms.html

Worms: http://yucky.discovery.com/flash/worm/ www.ipcc.ie/wormbin.html

Barking Up the Right Tree: www.treecouncil.ie/tree_council_downloads.htm

The Donkey Sanctuary: www.thedonkeysanctuary.ie

Elephant Ivory: www.dublinzoo.ie www.cites.org www.pbs.org/wnet/nature/elephants

Sleeping Gulls: www.sciencedaily.com/releases/2009/02/090220110914.htm

40,000 year old dung heaps:
http://news.nationalgeographic.com/news/2009/09/090904-saf-rock-rabbit-video-ap.html

Best Wild Animal Pictures of 2009: www.nhm.ac.uk/visit-us/whats-on/temporary-exhibitions/wpy/index.jsp

Marine Habitats: www.theseashore.org.uk/index.html

Flotsam & Jetsam: www.marinedimensions.ie www.riverocean.org.uk/ocean/exhibition/digibooth/flotsom.htm

GeoSchol: www.geoschol.com www.gsi.ie/Education

We cannot be responsible for the content of external websites, so please observe due care when accessing any site on the internet.

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The World Around Us

"Foreign Correspondent" Michael Ludwig reports on some strange goings on in the natural world.

Killing Elephants for Ivory

Some distressing items are on display at Dublin Zoo. Confiscated ivory jewellery and the elephant tusks used for making them are presented to raise public awareness of the plight of animals that grow ivory. Ivory teeth and tusks are made from the dentine of animals such as the elephant, hippopotamus, walrus, and narwhal. Illegally killed for their ivory, these species are rapidly disappearing. There is still illegal trading of ivory even though the ivory growing animals are protected by the Convention on International Trade in Endangered Species (CITES) signed by more than 170 nations. The illegal pieces now on display at the zoo were seized at Dublin Airport. The zoo's Director, Leo Oosterweghel says that illegal...poaching threatens these animals very existence and steps must be taken to protect them. In 1970 there were about 400,000 wild African elephants, but by 2006 there were only 10,000 and the situation is worsening. Somehow killing a 4.5 tonne animal to make a couple of necklaces and matching earrings just isn't right.

Sleepy Head

Scientists are always interested in studying animal behaviour. Dr. Guy Beauchamp (University of Montreal, Canada) has been studying groups of Ring-billed and Herring gulls in the Bay of Fundy for the last two summers. Instead of falling into a deep sleep, he found that the birds sometimes interrupt their sleep to take quick peeks at their neighbours. Other times they sleep with one eye open so they can constantly scan the group. They do this to mimic their immediate neighbour's behaviour. If their neighbours are alert the gulls don't rest as much and are more aware, but if their neighbours are relaxed, then so are they. Dr. Beauchamp believes that this mimicking may help birds if predators are close by. If surrounding birds are ready to take flight then it's better if they are too!

What a Picture!

Are you interested in wildlife photography? Well, if you are, then check out the Best Wild Animal Pictures of 2009 on London's Natural History Museum's website: http://www.nhm.ac.uk/visit-us/whats-on/temporary-exhibitions/wpy/index.jsp. There are some stunning images, particularly the winning entry "The Storybook Wolf", which is of an Iberian wolf leaping over a farm gate.

40,000 year old dung heaps!

On the southern tip of Africa is the Western Cape mountain range. Researchers there are searching the mountains for very unusual specimens - fossilised dung heaps! The dung heaps are produced by the Rock Hyrax, which is also known as the Rock Rabbit. These animals are little like guinea pigs, with small ears and tails. They occur in large groups and are often seen basking in the sun at the top of the mountain.

So why are they so interested in the dung heaps? Well, these dung heaps are like time-capsules. They contain excrement, hair, dust, pollen and urine (the urine hardens and acts like glue, holding everything together). Layers of dung have built up over thousands of years and each layer holds important information on the climate and vegetation of that period in time. Some dung heaps are up to 40,000 years old! Researchers use this information to build a picture of how the climate and surroundings have changed over the years.

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Marine Habitats

On the water's edge there are a huge range of habitats. The sea itself is one large habitat and the coastline is another. However, these bigger habitats contain many smaller ones. All animals and plants have different requirements and many choose to live in a habitat which suits these requirements. There, together with other animals and plants, they form communities. Explore some of these habitats below:

Rocky Shore

A rocky shore would be considered a stable home compared to other habitats by the sea, because unlike sand and pebbles found on other shores, the rocks do not move about so much. Rocky shores are usually made up of solid rock, boulders, large stones and rockpools and its shape is dictated by erosion from the wind, waves and rain. Like other shores, rocky shores can be both exposed or sheltered. There are many different areas on a rocky shore where animals can live and so in one large habitat there are many smaller habitats, e.g. in rockpools, on rocks, under rocks, in crevices, on overhangs, among seaweeds and on other animals.

Muddy Shore

Muddy shores may seem like empty deserts but on closer inspection there is a huge amount of life there. Mud provides many animals with shelter from the waves, particularly those that burrow, and as the habitat is constantly wet they do not have to worry about drying out. A muddy shore, however, can be a difficult place for some organisms to live. Because mud is made up of lots of tiny particles of silt and clay, tightly packed together, there is very little oxygen. Animals that live there must live close to, or on the surface to be able to breathe. Most will have developed special features in order to survive.

Strandline

The strandline can be a fascinating place to explore but due to the unstable nature of this habitat very few animals and plants make their permanent home here. Often it is just the remains of plants and animals, as well as human rubbish that are washed up from the sea by the waves. Sometimes living animals and seaweeds are washed up but very few of these survive out of water and will soon die. All of this debris found along the strandline is called 'flotsam and jetsam'. It is normally found just above the high tide mark but can be forced further up the shore during storms and exceptionally high spring tides.

Underwater

The sea covers up to 71% of the earth's surface and in parts can be as deep as 10 km. It is the largest of all habitats and holds a huge variety of organisms. Light can penetrate from about 30 – 150 metres into the sea, which means the deeper down you go the darker it gets. Some organisms prefer habitats with lots of light whereas others prefer complete darkness. The sea floor, which can be made up of hard rock, boulders, stones, sand, mud and clay provides a diverse range of habitats.

Images courtesy of Paul Kay.

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Fun Page

How much did you learn?

The answers to all these questions can be found in the newsletter...see if you can remember!

1 What type of animal is the subject of the Best Wild Animal Picture 2009?

2 What is the worst type of "flotsam and jetsam"?

3 According to the nursery rhyme, what does the north wind bring?

4 In the past 22 years, how many donkeys has the Donkey Sanctuary rescued?

5 What distressing items have recently gone on display in Dublin Zoo?

6 What shape is a lugworm's burrow?

7 Does Dr. Guy Beauchamp study bird behaviour or plants?

8 In the Touring Ireland Game , which type of building material is between Belfast and Sligo?

9 Name two marine habitats.

10 What type of worm is the world's longest?

11 What is the Irish for a robin?

12 Are the potatoes raw or cooked when they are put on the Family Fish Pie?

13 If the bark from an apple tree is used to dye wool, what colour will the wool then be?

14 Are researchers looking for fossilised dung heaps to fertilise their gardens or to study climate change?

15 In which row of the Wordsearch does the word "Earthworm" begin?

Answers: (1) Iberian Wolf. (2) Rubbish. (3) Wet and cold together. (4) 2,800. (5) Elephant ivory. (6) U-shaped. (7) Bird behaviour. (8) Sandstone. (9) Rocky, Muddy, Strandline, Underwater. (10) A Giant Ribbon Worm. (11) Spideog. (12) Cooked. (13) Yellow. (14) To study climate change. (15) Row 2.

Think of a Title!

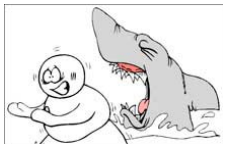
Have fun with your friends making up a title for this picture of Stone Sheep, in British Columbia, Canada.

Courtesy of Alan D. Wilson www.naturespicsonline.com

Nature Jokes

Which reindeer have the shortest legs?
The smallest ones.

Which is stronger an elephant or a snail?
A snail, because it carries its house. An elephant just carries its trunk!



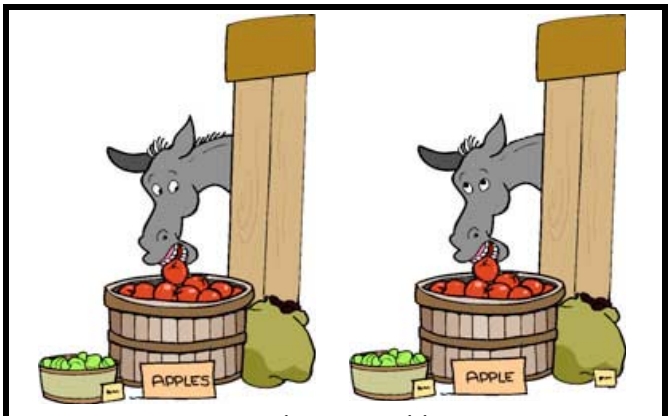
What do you get if you cross a snowman and a shark?
Frostbite.

Why does a stork stand on one leg?
Because it would fall over if it lifted the other one.

What do you call an igloo without a toilet?
An ig.

Why was the lion-tamer fined?
He parked on a yellow lion.

How can you tell which end of a worm is which?
Tickle it in the middle and see which end laughs.



Spot the five differences!

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Flotsam & Jetsam

On page 12 we look at some of the different marine habitats. One of these is the strandline, where unusual objects are sometimes found. If you walk on the shore, along the high tide mark, you will often find debris that has been left behind by the outgoing tide. These may be animals and plants that have been drifting in the sea, having been washed off the rocks. They may also have come from deeper waters, either floating freely or attached to wreckage.

Much of what is found is possibly dead. Due to the pounding of the waves, it is usual to find only small pieces of plants or animals. It is important to remember this when you are trying to identify them, as they can look very different when whole.

It is not possible to list everything that could be washed up. The ocean covers a huge area, and is inhabited by countless animals and plants. The following is just a sample of what can be seen.

Images courtesy of Paul Kay.

Common Cuttlefish

The Cuttlefish (see inset) belongs to the same family as the Octopus and Squid and lives in bays and estuaries. When the Cuttlefish is alive, the bone inside its body has many tiny holes which fill with gas. These help it float.

When the Cuttlefish dies and decays, the bone floats about in the water for a long time and is sometimes washed up on the shore.

Common Whelk Eggmass

The eggs of the Common Whelk look like a mass of bubbles stuck together, each "bubble" containing one egg. When the eggs are freshly laid, they are spongy but they are rarely seen in that state. Usually, the egg-masses are empty by the time they have been washed up on the shore, as the young will already have hatched. The egg cases dry out on the beach and become very brittle.

Rubbish

Unfortunately not everything that washes up on the shoreline is totally natural. The tide can often brings in rubbish, which has been dumped into the sea. Be careful what you touch as it may be dangerous.

The Mermaid's Purse

The Mermaid's Purse is the egg case laid by the dogfish in deeper waters. It has long, twisted tendrils on each corner which are used to anchor the egg case to seaweed or other structures on the sea bottom. It is light brown and almost see-through. The egg case is usually only seen when it is washed up on the shore, and then it is often dry and hard. It is normally empty, as the young fish will have hatched by the time the case is washed ashore.

Hornwrack

Hornwrack looks like a plant, but in fact it is made up of many animals living together in a group, or colony. It is found in deep waters, and is only seen on the seashore when it is washed up after storms.

In deeper waters, it can be found growing in huge beds on rocks and stones where it also provides food and shelter for a large variety of creatures.

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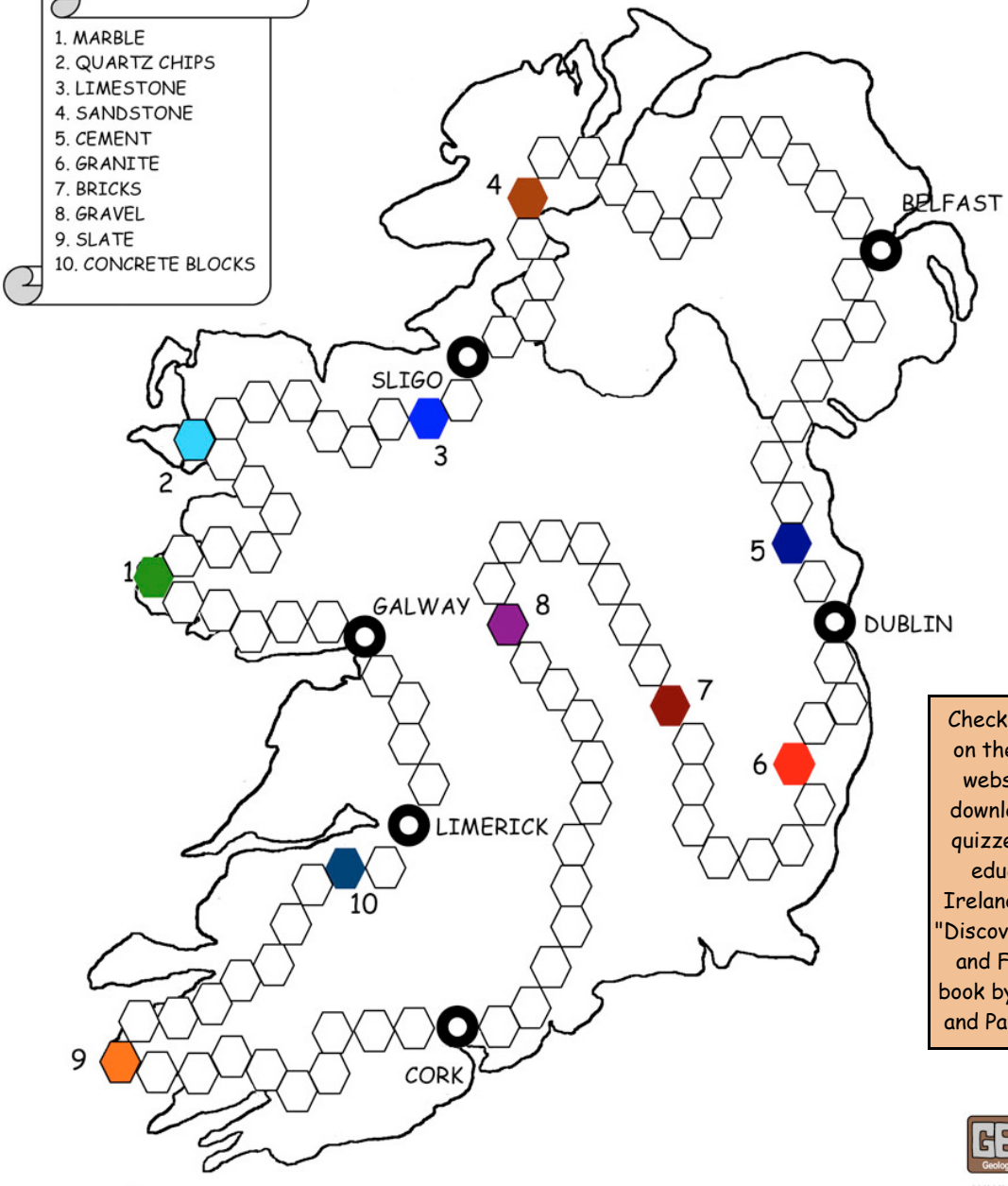
Touring Ireland Game

to collect building materials

A game for up to 6 players. Be the first to collect all the material that you need to build your house. Each player starts at a different city. Throw the dice once – the person throwing the lowest number starts. Then in turn throw the dice and move clockwise around Ireland. Collect your building material as you pass each numbered hexagon. The first player back to their city is the winner!

1. MARBLE
2. QUARTZ CHIPS
3. LIMESTONE
4. SANDSTONE
5. CEMENT
6. GRANITE
7. BRICKS
8. GRAVEL
9. SLATE
10. CONCRETE BLOCKS



Check out other activities on the www.geoschol.com website. There you can download more games and quizzes, as well as lots of education material on Ireland's geology, including "Discovering Ireland's rocks and Fossils" - an activity book by Adam Stuart Smith and Patrick Wyse Jackson.

www.geoschol.com

Game courtesy of www.geoschol.com

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Nature's Noticeboard!

Winter 2009

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PHARMACHEMICAL IRELAND
Focused on a Healthy Future

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