

Geography

HOMEWORK

8B

Reading on **animal species of the British Isles** and review of **glaciology**.

Name

Tutor Group

Teacher

The homework booklet contains essential reading on
© Ten 'British' animal species *plus* a review of glacial
landscape features and your essay planning pages.

Your homework will be set and reviewed on ☒

☐ Monday ☐ Tuesday ☐ Wednesday

☐ Thursday ☐ Friday

People ● Places ● Pattern ● Process

Ten interesting animals: Part 1. In this homework you will read about three British animals. One is a record breaker and two are under threat. Be ready to answer questions next week.

#10 Global traveller: Manx Shearwater (*Puffinus puffinus*)

Manx Shearwaters are medium-sized seabirds which spend most of their life at sea. From March to June the birds return to land to breed, raising single chicks in burrows on small islands. **Three colonies in the British Isles have populations over 300,000: on Skomer, Skokholm, and Rùm.** The adults return to their burrows at night having spent the day foraging at sea. The eerie, nocturnal cries of nesting shearwaters has led to associations with the supernatural. The mountains of Trollaval on Rùm, and Trøllanes and Trøllhøvdi in the Faeroe Islands, are believed to have acquired their troll associations from the night-time clamour of the Shearwaters colonies.

The Manx Shearwater feeds on small fish (herrings, sprats, and sand eels), crustaceans, such as krill, and squid. The bird catches food off the surface or by diving. It forages alone or in small flocks. Manx Shearwaters can be attracted by feeding whales, but rarely follows boats. **Amazingly, shearwaters can smell the chemicals given off by krill feeding on plankton several kilometres away.**

Amazingly once Shearwaters leave the nesting burrows they remain at sea for the next nine months. **Migrating to the waters of the South Atlantic, Manx Shearwaters may travel 10,000 kilometres in a single year.**

Manx Shearwaters are long-lived birds. A Manx Shearwater breeding on Copeland Island, Northern Ireland, was in 2003, the oldest known living wild bird in the world. It was ringed as an adult in July 1953 and was re-trapped in July 2003, at least 55 years old. It has been calculated that the bird would have flown over 1 million kilometres during its life.

#9 Under threat: Brown Hares (*Lepus europaeus*)

Brown hares are not native to the UK but have their origins in Central Europe. **They were introduced by the Romans or the Celts around 2,000 years ago.** It is thought that there may be around 800,000 brown hares in the UK. This may seem a lot but **scientists estimate that their populations have fallen by 80% over the last few decades.** This has been caused by intensive agriculture which has resulted in habitat loss for the hare. The Mountain Hare (*Lepus timidus*) is native to the UK but is restricted to Scotland and the Peak District National Park in England.

Homework N°1: continued

Today the Brown Hare faces its biggest threat since it arrived in these islands. In January 2019 it was confirmed that a deadly rabbit disease, **Rabbit Haemorrhagic Disease Type 2 (RHD2)**, has jumped the species barrier into hares. Two dead animals were found in Dorset and one in Essex.

Suspensions that the virus, which causes lung bleeding and hepatitis, may have spread to the hare population were raised in September, when sightings of sick and dying hares were first reported. The rabbit virus is known to have made the leap to European Brown Hares in countries such as Italy, France, Spain and Australia. Over time many species affected by a new disease should be able to build up a level of immunity. However, with **pressure on habitats, continued hunting throughout the year and the stress of a new deadly disease the Brown Hare's days as an icon of the British countryside may be coming to an end.**

#8 Under threat: Red Squirrel (*Sciurus vulgaris*)

Although Red Squirrel populations are healthy on mainland Europe, the species is currently suffering major decline in the UK. Numbers in the UK have fallen from a high of around 3.5 million to a **current estimated population of just 120,000**. The population in England is thought to be as low as 15,000. Predators, and changes to the landscape all pose threats to our native Red Squirrel but the introduction of the Grey Squirrel is the main reason behind the sharp decline.

Grey Squirrels (*Sciurus carolinensis*) were first introduced from North America in 1876 as an ornamental species for the grounds of stately homes. Grey squirrels, which are twice the size of reds, have spread rapidly and colonised much of Britain. **Greys can live at higher densities than Reds and are able to eat tannin-rich foods, such as young acorns. This gives the Grey Squirrel a very strong 'competitive advantage' over the Red in broadleaf woodland.** Failure to find enough food prevents female Reds from reproducing, while existing members of the population can gradually starve. Through competition alone, **Greys can replace Reds within 15 years in most woodlands. This leaves Reds with only coniferous forest habitats.**

However, the most significant threat associated with Grey Squirrels is the spread of a disease called the squirrelpox virus (SQPV). While not lethal to Greys it is deadly to Red Squirrels. It can take only one Grey to introduce this virus to a local population of Reds. Then the virus can spread rapidly throughout the Red population with devastating effect. Where SQPV is introduced, Red Squirrel extinction can happen in just a few years. With the continued spread of squirrelpox it may soon only be Grey-free outer islands where the native Red Squirrel survives.

Learning about the meaning and spelling of key biogeography words.

For **Homework 2** you must read the following key words and definitions and practise the spelling. You must be ready to spell these words and remember what they mean for next week's homework check.

Practise the spellings on the next page. Fold this page in half along the dotted line to hide the words while you spell them.

Environment (en-vir-on-ment)	A particular geographical area and conditions in which plants, fungi, bacteria and animals live
Ecosystem (e-co-sys-tem)	The living and non-living elements of an environment linked together by transfers of nutrients and energy.
Biome (bi-ome)	An ecosystem on a global scale, such as tropical rainforests or savannah grasslands.
Biotic (bi-o-tic)	The living elements of an ecosystem, such as bacteria, plants, animals and fungi.
Abiotic (a-bi-o-tic)	The non-living elements of an ecosystem, such as air, water and sunlight.
Deciduous (de-cid-u-ous)	A plant or tree which loses its leaves, for example during the winter or a dry season.
Photosynthesis (pho-to-syn-the-sis)	A process by which plants convert solar energy, carbon dioxide and water into carbohydrates.
Chlorophyll (chlor-o-phyll)	The green substance in plants which facilitates photosynthesis.
Trophic pyramid (tro-phic pyr-a-mid)	The feeding relationships within an ecosystem from primary producer, through levels of consumers to the apex predator.
Adaptation (adap-ta-tion)	The ways that plants and animals have evolved to cope with certain environmental conditions.

Practise your spellings

Practise your spellings on this page. Spell the word on the line above the definition and then check. If you get it wrong you can try again.

A particular geographical area and condition in which plants and animals live

The living and non-living elements of an environment linked together
by transfers of nutrients and energy.

An ecosystem on a global scale, such as tropical rainforests .

The living elements of an ecosystem such as plants and animals.

The non-living elements of an ecosystem, such as air, water and sunlight.

A plant or tree which loses its leaves during the winter or dry season.

A process by which plants turn solar energy, CO₂ and H₂O into carbohydrates.

The green substance in plants which facilitates photosynthesis.

The feeding relationships in an ecosystem from producers to apex predators.

The ways that plants and animals have evolved to cope
with certain environmental conditions.

Ten interesting animals: Part 2. Read about three more animals found in the British Isles. Two are success stories but the last is anything but.

#7 Returned from extinction: White-tailed Eagle (*Haliaeetus albicilla*)

The White-tailed Eagle, or Sea Eagle, is the largest bird of prey in the UK and the fourth largest eagle in the world. Its wingspan can reach 2.5 metres and an adult bird can stand as tall as one metre. British Sea Eagles were hunted to extinction in the 1800s. However, the birds were successfully reintroduced to Scotland's west coast between the 1970s and 1990s. East coast reintroduction started in 2007. Eggs were taken for nests in Norway and the chicks reared and released in Scotland. **Breeding pairs of White-Tailed Eagles are now found on the Isle of Skye, Rùm, Mull** and a number of sites on the west coast mainland.

White-tailed Eagles are versatile and opportunistic hunters and carrion feeders, sometimes pirating food from other birds and even otters. They eat largely fish, but also take various sea birds, rabbits and hares. Carrion is an important part of their diet, especially during the winter months. Most lambs are taken as carrion, rather than killed by the birds themselves. When fishing, they fly low over water, stop to hover for a moment and drop to snatch fish from the surface.

The birds fall victim of both the deliberate persecution of the eagles themselves and as incidental victims of poisons illegally set for foxes and crows. Young birds, wandering before establishing their own territories, are particularly hard hit. **Protection and surveillance of the nest sites is of extreme importance to prevent illegal egg robbing. All nest sites are a closely guarded secret to minimise the danger.**

Since the birds range over extensive areas, it is difficult to protect their habitat. While most birds do not threaten livestock, individual pairs may present a local problem in some cases. Scottish Natural Heritage offers positive management schemes to farmers with eagles on their land on Mull and Skye.

#6 Coming back from extinction: Eurasian Beaver (*Castor fiber*)

Beavers are native to the UK and used to be widespread in England, Wales and Scotland. **They became extinct in the 16th century**, mainly because of hunting for their fur, meat and 'castoreum', a secretion used in perfumes, food and medicine. **Beaver populations were reintroduced in Scotland, to Argyll (as a trial) and Tayside (by accident) in the 1990s.** The species will receive legal protection as European Protected Species in May 2019 and from then on the species will be

Homework N°3: continued

allowed to expand its range naturally. A trial is also underway in Devon.

This decision will see the return of a species that was part of our wildlife for thousands of years. **Beavers benefit nature. As 'ecosystem engineers' their activities can create wetland habitats, improve habitat structure and diversity and enhancing bio-diversity.** Beavers can also alleviate flooding and improve water quality. The wetlands they create act as a powerful carbon sink locking away carbon that would otherwise enter the atmosphere and further global warming.

In some places and situations the activities of beavers can have negative impacts on farms and gardens. But in most cases this can be easily managed by fencing vulnerable areas or protecting individual trees. **In many parts of the world, ecologists are also trying to reintroduce beavers because of the very positive impacts they have on the environment.** However, many land owners still seem reluctant to have beavers on the land.

#5 Unwanted invader: Signal Crayfish (*Pacifastacus leniusculus*)

The Signal Crayfish is native to western North America. It was introduced in 1976 to be farmed for food but soon escaped into our rivers, quickly spreading across the UK in the 1980s. They are now widespread across England and Wales, especially southern England. Signal crayfish have been introduced into over twenty countries in Europe since the 1960s and they are causing havoc.

Signal Crayfish are driving native White-clawed Crayfish (*Austropotamobius pallipes*) towards extinction through the spread of a disease called crayfish plague. They also out compete the native species for resources, especially refuge sites. **Signal crayfish are larger, grow faster, lay more eggs, are more aggressive and tolerant of a wider range of conditions than the White-clawed Crayfish.** They simply out-compete the native species. They feed on fish and amphibian eggs, tadpoles, juvenile fish, aquatic invertebrates and aquatic vegetation. They reduce populations of native species and affect food webs. Signal Crayfish are partly blamed for frog, toad and newt population declines. **Bio-diversity and species richness are lower, and food webs are damaged in rivers containing the American crayfish invader.**

Crayfish burrowing can cause erosion of riverbanks. Burrows can be up to 2m deep, with many inter-connecting tunnels that weaken the bank. This can contribute to problems with flooding, livestock safety and the stability of structures built on the banks. Fishers are now working under licence in many rivers to catch Signal Crayfish. Their tails are considered a delicacy and sell well across Europe.

Ten interesting animals: Part 3. Read about four more animals found in the British Isles. Two are causing concern while debate continues over the return of the final two species. Be prepared to answer questions next week.

#4 Bright green invader: Ring-necked Parakeets (*Psittacula krameri*)

There are many conflicting stories about how Ring-necked Parakeets ended up living and breeding in Britain. Some claim they were released from the set of the movie African Queen after filming had ended, others that they were released at a Jimi Hendrix concert. Most likely they just escaped from cages and aviaries. Living for up to 30 years they had the chance to meet up with other escapees and breed. **Ring neck parakeets are native to sub-tropical Africa and Asia but since being released in Europe have become the world's most northerly breeding parrot.**

Despite their tropical origin, the parakeets are fully able to cope with the cold British winters, especially in suburban parks, large gardens and orchards, where food supply is more reliable. **Despite previous escapes, it appears that these parakeets only started to breed in 1969-70 in Kent, south-east of London. Since then the population has steadily increased, with 32,000 recorded in 2012.**

Even though Greater London and surrounding areas is still its stronghold, the species has been recorded in almost every county in England, and has reached Wales and the Scottish borders. **Large flocks of up to 1,000 birds have been recorded in south Manchester and Preston.** The parakeets can be a danger to native species, driving them away from scarce food sources and forcing smaller birds and bats from nesting sites. They can also be a menace for farmers, devastating fruit crops. **Some people argue for a widespread cull of parakeets, while others believe they deserve protection, just like other wild birds.**

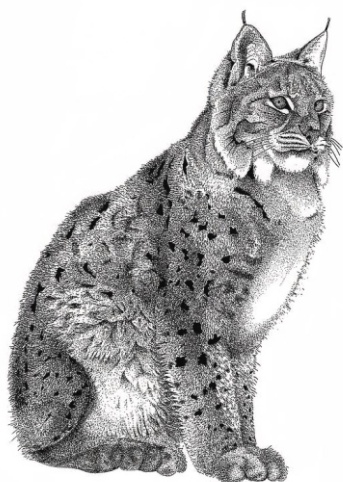
#3 Miniature invader: Muntjac Deer (*Muntiacus reevesi*)

A very small, stocky deer, the Muntjac Deer is about the same size as a medium dog. Muntjac Deer were introduced from China to Woburn Park in Bedfordshire at the start of the 20th Century. They escaped and rapidly spread into the surrounding area. **Muntjacs are now common across South East England and can be found in woodland, parkland and even urban gardens.** These small deer are notorious browsers, eating the shoots from shrubs as well as woodland herbs and brambles. Male Muntjac have short, unbranched antlers that slope backwards, and a pair of long tusks, with which they can defend themselves from dogs. They breed all year-round, but females usually only have one kid at a time. **Muntjac Deer are also known as 'Barking Deer' because of their dog-like calls.**

Homework N°4: continued

Muntjac may only stand 20cm tall at the shoulder but they are destructive animals, an invasive species, which can have significant negative impacts in the wild. The animals damage orchards, cereal crops, coppice and bluebell woods. They have been known to cause accidents on roads. **It is now a criminal offence to transport or release Muntjac, or even care for an injured animal.** Muntjac may well be the most numerous deer in the UK, despite efforts to stop its spread into Scotland. **The UK has the least forested area of any European country and efforts to expand our woodlands area may be severely hampered if Muntjac numbers continue to grow unchecked.**

#2 Return of the predator: Eurasian Lynx (*Lynx lynx*)



Wild lynx could soon return to Britain for the first time in 1,300 years after landowners agreed to let them roam on 400 square kilometres of forest in Northumberland. The Lynx UK Trust has applied to Natural England for permission to release six Eurasian lynx into the Kielder Forest. The rewilding group believes that consent for the project is a 'near certainty' after the owners of twenty adjoining plots in the forest agreed the animals could be set free on their land.

If the release is successful it could lead to the widespread reintroduction of the cats into the Scottish Highlands and other parts of Britain.

The Eurasian Lynx, an original native of the British Isles, is a medium-size cat that was forced out of much of Western Europe by habitat destruction and hunting over the last 2,000 years. The last British Lynx disappeared around 1,300 years ago. Lynx feed by hunting deer and a variety of small mammals. It is a legendarily elusive creature referred to by ancient cultures as a 'keeper of secrets' that never left the forest. Spotting a wild Lynx may be rare but they might also be the best chance we have of controlling Muntjac deer numbers.

Solitary and secretive, Lynx pose no threats to humans. It is exceptionally rare for them to predate on farm animals. Their presence will return a vital natural function to our ecology, helping to control numbers of deer and other agricultural pest species. **Lynx will protect forestry from damage caused by uncontrolled deer numbers.** Re-introductions into other European countries have been a remarkable success with Lynx numbers increasing and positive ecological impacts cascading through affected ecosystems.

Homework N°4: continued

#1: *Is it time for the return of our apex predator? Grey wolf (Canis lupus)*

When wolves were reintroduced to Yellowstone National Park in 1995, they had dramatic impacts on parts of north western United States. Decades later, a wealthy landowner wants to try a limited version of that experiment, this time in the Scottish Highlands. Englishman Paul Lister is hoping to see the ancient Caledonian Forest of Scot's pine, alder and mountain ash regenerated, and with it return the wildlife long absent from the Highlands. But as happened with the Yellowstone project, he's running into strong opposition.

The Highlands' rocky hills and windswept glens are an austere, beautiful landscape. Some visitors are surprised to learn they were once heavily forested before humans cut down the trees to feed a voracious appetite for timber. When Lister bought a 9,300 hectare estate northwest of the Scottish city of Inverness he began reviving the environment, replanting hundreds of thousands of trees in some areas and restoring dried out peat bogs in others. **But he faced a problem: a booming red deer population. With no predators to control numbers red deer were grazing the replanting efforts to death.** They were eating the young trees before they could come close to maturity.

Besides an estimated 750 deer, Alladale supports a small herd of shaggy, long-horned Highland cattle; golden eagles and foxes have been spotted. But **the ecosystem, like much of Britain, is out of balance.** Too many deer damage the forest's ability to regenerate. The estate owner would like to see the deer population reduced by a little more than half, closer to 300 animals. **That's where the wolves would come in, but only if Paul Lister gets permission to bring a small pack over from Sweden.**

Wolves wouldn't wipe out the deer. They might take a few dozen each year but, crucially for the environment, they would change the deer behaviour. Wolves would keep the deer moving and prevent them grazing saplings down to the ground. This would give young trees a chance to grow. The trees could then mature and start casting their seeds, creating a natural process of regeneration.

The Allerdale project is facing stiff opposition. **For many people wolves are just too frightening. However many ecologists believe that the British countryside can never be truly 're-wilded', or even brought into some sort of balance, unless the large predators are allowed to return.** With wolf numbers reaching upwards of 17,000 in Europe, will Britain be the only country to deny a home to these majestic apex predators?

Homework N°5: Glaciology review

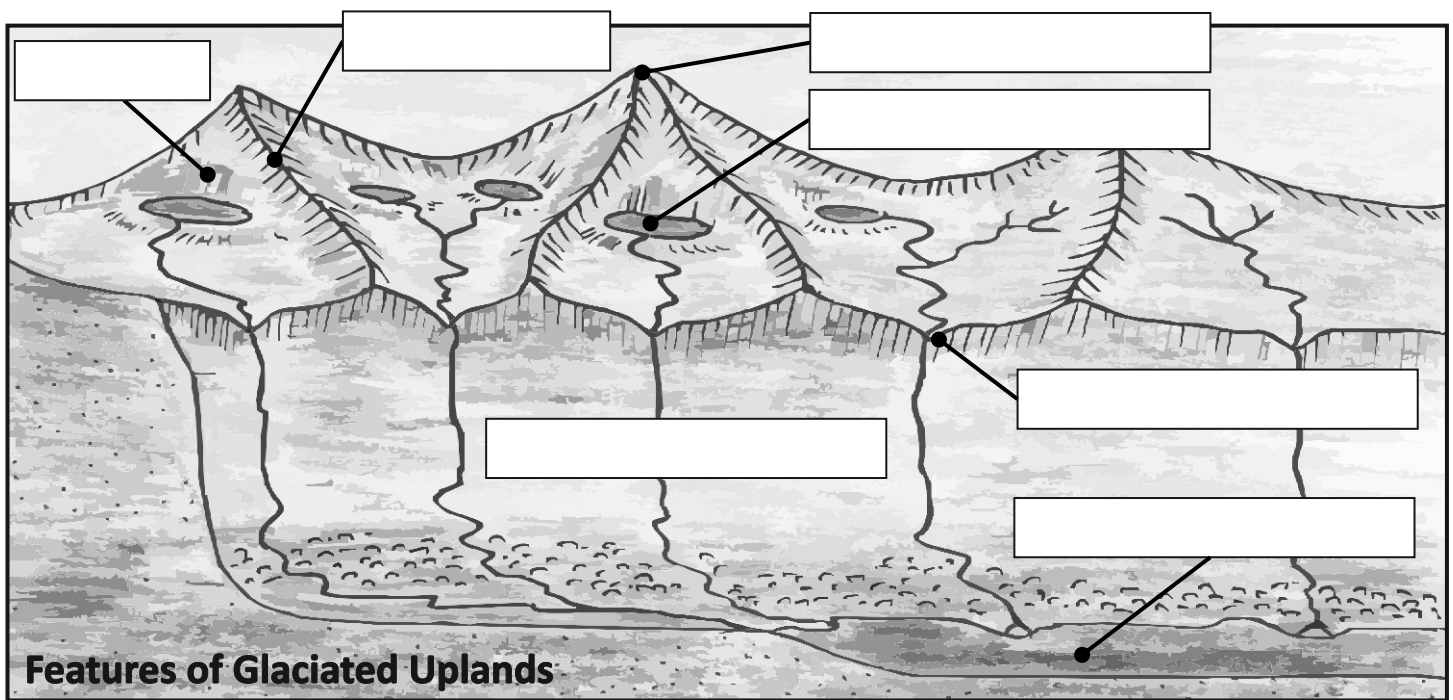
Glaciology Review, #1. Key terms in glacial features

Once they have melted, glaciers leave behind distinctive features in the landscape. In this first activity draw an arrow to connect the glacial feature named on the left with the correct definition on the right. One has been done for you.

Corrie	The sharp knife-edged ridge separating two corries.
Corrie tarn	A bowl-shaped hollow in a mountain side found where a glacier forms.
Arete	A often-pointed mountain summit where three or more arêtes meet.
Pyramidal Peak	A round lake filling the base of a corrie.
Glacial Trough	A long, thin body of water often found filling the bottom of a glacial trough.
Hanging Valley	A deep U-shaped valley formed as a result of glacial erosion.
Ribbon Lake	A side valley, often with waterfalls, left high above a glacial trough.

Glaciology Review, #2. Locating glacial features

Use the seven words above to correctly label the boxes in the diagram below.



Homework #6 Assessment Essay: show what you know.

Set date

date for in-class write-up

Your key assessment for this unit will be to complete an essay answering the following question:-

Should we bring back the wolves?

In this essay you should ensure that you try to cover the points numbered below. They do not need to each be in a separate paragraph, as you may choose your own structure. However, you should try and ensure that each paragraph flows clearly into the next paragraph.

- 1. Outline what is meant by an ecosystem and describe how nutrients and energy flow through ecosystems.**
- 2. Describe the main ecosystem found naturally in the British Isles.**
- 3. Describe and explain how that ecosystem has been radically altered by human activity.**
- 4. Explain why many people want to protect our natural wildlife habitats.**
- 5. Discuss why some naturalists want to embark on a process of re-wilding for Britain.**
- 6. Explain how wolves act as a 'keystone species' in many northern ecosystems. Suggest arguments for and against returning wolves to the UK. What is your opinion?**

You will have one lesson to write up this essay, in exam conditions, so you should plan to write for around 45-50 minutes. You will be allowed to bring in this booklet with up to four pages of prepared notes and reminders for your essay.

You will be credited for diagrams as well as writing, should you feel they are relevant. Key words should be used throughout, including those you learned to spell in Homework N°2. The essay will be marked using the standard Geography Department essay marking grid which is shown on the next page.

Use the grid to ensure you try and cover the higher levels. If you do not use examples you will score poorly on Section 3. If you do not write in clear paragraphs and mis-spell key words you may score less well on the Section 4.

The key to a good essay is good planning, so use the homework time well.

8B Living Britain homework quizzes

Each week you must read the pages in the booklet that your teacher has assigned to you. The focus of the homework is to improve your reading on geographical issues.

Week 1 (read homework 1 pages) questions	Answers
True or false? Manx shearwaters have many chicks which they raise in nests high on sea cliffs.	
True or false? Shearwaters colonies make so much strange noise at night that they may have been mistaken for trolls.	
True or false? A Manx shearwater travels around 10,000 kilometres in a single year	
Which people are thought to have introduced Brown hares to the UK?	
True or false? Hare population have been increasing in the UK in recent decades.	
Why might hares face their biggest threat from contact with rabbits?	
Why are grey squirrels able to 'out compete' Red Squirrels in deciduous woodland?	
Total Score	____/7

Week 2 questions	Answers
Which word means a particular area and the conditions in which plants, fungi, bacteria and animals live?	
Which word means an ecosystem existing on a global scale such as tropical rainforests?	
Which word describes the process by which plants convert solar energy, carbon dioxide and water into carbohydrates?	
What is the word which describes trees which lose their leaves in the autumn/winter or during a dry season?	
What is the name of the green substance found in plant leaves which facilitates photosynthesis?	
What word refers to the living and non-living elements of an environment linked together by transfers of energy and nutrients?	
Total Score	____/6

Week 3 questions	Answers
White tailed sea eagles were reintroduced to Scotland with eggs taken from nests in which country?	
What is the food of choice of white-tailed sea eagles?	
Which three Scottish islands have permanently-resident breeding pairs of sea eagles?	
When did the Eurasian beaver become extinct in Britain?	
Why are beavers sometimes described as 'ecosystem engineers'?	
Where did the Signal crayfish originally come from?	
Which disease are Signal crayfish spreading to European white-clawed crayfish?	
Total Score	____/7

Week 4 questions	Answers
True or false? Ring-necked parakeets are native to North and South America.	
True or false? Parakeets can damage farmers' fruit crops.	
Muntjac deer originate from which country?	
True or false? Muntjac deer are not only the size of a medium dog but they also bark like a dog.	
For how many years have wild lynx been absent from the British Isles?	
The UK Lynx trust is seeking to release six wild lynx into which forest in England?	
	____/6

Week 5: Choose an animal you have read about in this homework booklet. Please find 7 facts about this animal e.g. where does it live, what does it eat, is it threatened by people....	
1.	
2.	
3.	
4.	
5.	
6.	
7.	

GEOGRAPHY Homework

8B

ECOSYSTEMS

IN THE

BRITISH ISLES

Animals of the British Isles