



# Conservation Education

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## Endangered Animals Of The World

Have you heard of the Hispid Hare? Or the Northern Hairy-nosed Wombat? How about the Fragile Tree Snail? You may think they are weird and wonderful animals from a storybook but no, they are just three of the thousands of species (different kinds) of animals that live on our planet now - BUT they may not be around for much longer because there aren't many of them!

They belong to a special group of animals that we know as **endangered**, meaning that they are in danger of becoming extinct, or no longer living on Earth. In 1995 there were about 5,000 species of animal endangered but today, ten years later, there are over 7,000 species of animals known to be endangered – and the number is expected to continue to rise. In the pages to follow you will learn why so many animals are endangered, but first let's look at the world of living things in general.....

only about 2 million animal species and 300,000 plant species. Most of the unknown "millions" awaiting discovery live in tropical rainforests, which are home to over half the total number of species of wildlife in the world. There are about twice as many animal species in rainforests than in any other habitat.

Continued overleaf

## Life on Earth

The first living things (organisms) appeared on Earth about 3,500 million years ago and were found in the sea. Over millions of years a rich variety of plants and animals has descended. Through the process we call **evolution**, all living organisms have become adapted to live in every part of the world and in many different habitats - from the huge oceans to the driest of deserts. Biologists (people who study the science of life) think that there may be more than 30 million species of living organisms in the world today, although so far biologists have found and named



There is a special word that describes the great variety of life on Earth and it is known as BIODIVERSITY. "Diversity" means difference or variety so "biodiversity" describes the whole range of the different species of living organisms found in habitats everywhere on Earth. The biodiversity of habitats is very important because every plant and animal has a "job" to do. For example, a wide variety of plants can support many different species

of herbivores (plant-eating animals), which, in turn, can be food for a large selection of carnivores (meat-eaters). If one species of plant or animal becomes extinct then the food chains may be broken making other animals short of food – so they may become extinct too! Biodiversity is also important for people in many ways. For example, a few species of plants are used as medicine to treat human diseases and there may be more of these medicinal plants awaiting discovery in wild habitats, especially rainforests. The more species that are conserved

(protected from extinction), the more chance there is of discovering important cures for our illnesses.

A "happy habitat" has a rich biodiversity, but if a number of its plants and animals are taken away the rest may also eventually move away, if they can, or die. To protect biodiversity we need to protect endangered wildlife from extinction – and keep their habitats in good condition. Every species is important, from the tiniest insect or flower to the biggest whale or giant tree!

# Dinosaurs... Extinction...People

You may be thinking, "Isn't extinction a natural thing that has been happening for millions of years?" Yes, you'd be right! Ever since life began in the sea all those millions of years ago, species have come and gone as the Earth's climate and habitats have changed. You probably know that those well-known reptiles, the dinosaurs, became extinct 65 million years ago, having lived on Earth for 165 million years. Nobody knows for certain why they died out, although it was quite possibly due to the results of a giant meteorite hitting the planet. What we do know for certain is that it cannot have been anything to do with humans because there were no people on Earth at the same time as the dinosaurs – we didn't begin to arrive until about 2 million years ago and modern man (looking very much like we do today) wasn't around until only 30,000 years ago.

Natural extinction happens very, very slowly and depends on how well a species can adapt to its changing surroundings,

such as changes in climate and changes in other plants and animals around it. The extinction of one species can take millions of years and as it happens another species makes an appearance. As the dinosaurs died out, new species of animals took their place.

About 300 years ago, things started to change – the rate of extinction began to speed up, meaning that animal and plant species were becoming extinct faster than is natural. The reason? A huge increase in the number of people over the last 300 years! **Homo sapiens** (the species name for modern Man) is now the most numerous large animal on Earth. The human population in 1700 was almost 1 billion (1 thousand million) and today, just over 300 years later, there are more than 6 billion people! This enormous population has put such pressure on the

lives of other living things that in the last 300 years it is people that have caused the extinction of hundreds of animals and plants all over the world.

**"Dead as a Dodo"** The dodo has become a symbol of extinction caused by Man. This bird would probably still be alive today if sailors from Portugal hadn't discovered its home in 1598. It lived on Mauritius, an island in the Indian Ocean off the coast of Africa. From descriptions, paintings and drawings of the time, we know that the dodo was a grey, turkey-sized bird and probably a relative of the pigeon, with a big beak and a fluffy white plume of feathers on its tail. It had little stubby wings, useless for flying - but it didn't need to fly, as there were no animals on Mauritius that ate it! When the sailors landed on the island they were amazed that these birds were not at all frightened and didn't try to run away as humans walked up to them! "What stupid birds!" the sailors thought – and that is what they named the bird – a "dodo", which means "stupid" in Portuguese! Of course, the dodo wasn't really stupid at all. It just didn't realize that Man could be a dangerous animal and the sailors found them very easy to kill for food. The dodo made its nest on the ground and rats, cats, pigs and monkeys came with the people and the dodo's eggs and chicks were trampled on and eaten. As a result of all these predators, within a few years there were very few dodos left and around 1681 they became completely extinct.



Can you find examples of animals that have become extinct in Britain over the last few hundred years?

Dodo

We will now look at the main reasons why humans' activities cause animals to become endangered...

A habitat may be any place where plants and animals can live undisturbed – even a city or a garden – but it is the natural, wild habitats, such as forests, grasslands and marshes that have suffered from human disturbance. Humans have been making changes to natural habitats all over the world for thousands of years. Let's take Britain as an example.

About 5,000 years ago, almost the whole of Britain was covered with trees, mostly the broadleaf type (those with flowers and wide, flat leaves like oak, hazel and birch). Then the early Neolithic people began to cut down the trees (this is known as **deforestation**) with flint axes to create settlements and fields for farm animals and crops such as wheat. It was during the 16th and 17th Centuries that much of the remaining forest was destroyed to provide timber for ships and charcoal for the iron industry. The ever-increasing number of people in Britain needing space for housing has meant that almost all the original forest has disappeared. Today only about 10 per cent of the land is covered with forest but most of this is specially planted coniferous trees (trees with needles and cones such as "Christmas trees").

# Habitat Destruction

As you can imagine, the loss of forest habitat has affected the wildlife that lives in it. The **brown bear** and the **wolf** once roamed our forests but deforestation and hunting by farmers caused them to become extinct a few hundred years ago. Several other forest species have become extinct also and the remaining woodland (a wood is just

a small forest) is home to several endangered animals such as the red squirrel and the common dormouse.

Hedgerows, heathland, chalk downland, marshes, ponds, water meadows and wildflower meadows are also examples of Britain's endangered habitats, all with their own special wildlife.



Pond



Brown Bear



Red Squirrel



Dormouse



Wolf

# Pollution

Pollution means making part of a habitat dirty in some way. If the water, the air or the soil of a habitat is polluted, the plants and animals will suffer and may even die. Most pollution is caused by people. It can affect animals in a physical way – for example, they may become trapped by certain types of litter or covered in oil – but it is chemical pollutants that have the most serious affect on animals.

Man has produced thousands of chemicals and some of them have been designed to kill plants and animals that are a nuisance to us. **Pesticides** (chemicals that kill animals such as crop-eating insects) and herbicides (chemicals that kill “weeds” – wild flowers that compete with a farmer’s crops) can seriously affect wildlife. For example, several species of wildflower have become rare in Britain through the use of herbicides and, because many insects depend on the flowers for food, there are fewer insects in the countryside today. Birds depend on insects for food, so they too are falling in numbers! The birds may even be poisoned because several types of herbicides and pesticides can travel up the **food chain**.

A good example of the danger of pesticides to food chains is the case of a well-known pesticide called DDT. This was first used in Britain in the 1950s and farmers thought it a wonderful chemical because it was very good at killing the crop-munching “bugs” in their fields, allowing them to grow a lot more food. However, it wasn’t long before people began to notice that thousands of **birds of prey** such as the **peregrine falcon**, **sparrowhawk** and **barn owl** were dying. By the 1960s, these once common birds were very rare. Scientists carried out some research on the DDT and discovered that it can be carried along a food chain. For example, a blue tit may eat a greenfly that has been sprayed with DDT. The blue tit may not have eaten enough poisoned greenfly to kill it but a sparrowhawk eating a lot of blue tits accumulates so much DDT in its body that it dies!



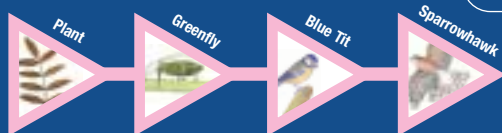
Pesticide Spraying



Industrial Pollution



Peregrine Falcon



## European Otter

Fortunately, when the danger of DDT had been discovered, its use was banned and the sparrowhawk is once again a common bird and other birds of prey are increasing in number. Although some chemical pesticides and herbicides are still used in Britain, they are not as dangerous as DDT. However, farms and gardens that are managed **organically**, that is, without the use of any artificial chemicals, have the best biodiversity – many more species of wild animals and plants!

At the same time as Britain’s birds of prey were being poisoned by the use of DDT, otters were also suffering from its effects. DDT was entering the rivers’ food chains as it was washed off nearby farmers’ fields, poisoning the insects in the water. Fish ate the poisoned insects and the otters, being the predator at the top of the food chain, ate many poisoned fish. The otters’ bodies accumulated high levels of DDT, which affected their fertility – they could not produce any young. Otters were heading for extinction during



European Otter

the 1950s and 60s but, fortunately, since DDT was banned in Britain, and with help from conservation groups (see “Helpful Websites”) otters have begun to increase in number.

# Hunting and Collecting



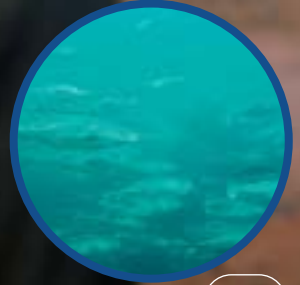
Man has always hunted and killed wildlife but early humans lived in harmony with nature and they killed animals mainly for essential food and clothing. When firearms were invented it was easier to kill many more animals. Since the end of the Second World War, in 1945, several species of animals have been hunted almost to extinction, not mainly for essential food and clothing but for sport, body parts or the pet trade. Whales, tigers, elephants and rhinoceroses are well-known examples of animals made endangered by hunting. Thousands of parrots have been captured from tropical rainforests to be sold as pets, making some species very rare.



Passenger Pigeon

Almost as famous as the dodo is the extinct **North American passenger pigeon**, once the most numerous bird in the world – there were literally billions of them! The early settlers in North America found the pigeons were very good to eat and they were unpopular with farmers as they ate seeds in crop fields. Thousands of the birds were shot and trapped and within fifty years of the settlers' arrival, this species of pigeon was completely extinct! The very last passenger pigeon lived in Cincinnati Zoological Gardens; she was called "Martha" and died on September 1st, 1914, at 1.00 in the afternoon, aged 29 years. This is probably the only case of where we know the exact moment when a species of animal has become officially extinct!

Man now threatens even the fish in the sea! For example, the once common **Atlantic cod**, an important source of food for people, is in danger of becoming extinct because too many have been caught. If we are to provide fish meals for future generations, then we must be careful to keep the fish stocks sustainable, which means that we must not catch too many and make sure there are enough fish left in the sea to be able to lay eggs so that there will always be a supply of fish. This is also important for the sea's food chains – other animals, such as dolphins, depend on fish for food.



Cod

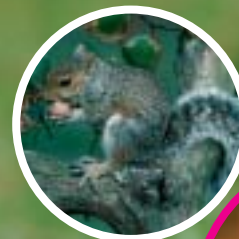
# Alien Animals!



No, not from another planet – an 'alien animal' is an introduced species – one that has been deliberately taken from one part of the world to another by people. Some introduced species eat the native animals (those that are there naturally) and others can harm the native animals by eating their food and taking over their territory. The rats, cats, pigs and monkeys preying on the dodo is one example of what damage the introduction of new species to a habitat can do. Another example is the introduction of the **rabbit** to Australia. Wild rabbits were taken to Australia on ships from England in the 1850s and deliberately released onto farmland for sport hunting. The rabbits settled down very quickly in their new home and, of course, produced many more rabbits! Before long they had spread all over Australia, eating huge amounts of grass so competing with the farmers' sheep and with the native animals, such

as the kangaroo. Over a hundred years later, even after many attempts to eliminate it, the rabbit is still a pest in most of Australia. It is also a pest in Britain, having been introduced here from the Continent in the 12th century by the Normans.

The **grey squirrel** was introduced into the south of England over 100 years ago from North America. It has made itself so much at home here that Britain's native **red squirrel** is now an endangered species. The red squirrel finds it difficult to survive if its grey cousin moves into the same woodland habitat. **Can you find out why? Is anything being done to help the red squirrel increase in number?**



Grey Squirrel



Red Squirrel

# Climate Change

Our planet's climate (the day-to-day weather patterns) has changed naturally over millions of years. For example, seventy-five million years ago there was a tropical climate across almost the whole of Earth, but since then ice ages have come and gone, when the Earth's temperature dropped dramatically. These temperature changes have normally happened very slowly, over thousands of years, but scientists have discovered that the Earth's surface is warming up more quickly than ever before. Although this change may be partly due to natural causes, it is believed that Man's activities are adding to the problem. Over the last 250 years, we have been burning **fossil fuels** (coal, oil and natural gas) to provide energy to make electricity, heat our buildings, run our cars and power factories. When the fuels are burned, they release carbon dioxide gas into the air. **Carbon dioxide** is a natural part of the atmosphere and it helps to keep the planet warm by trapping heat from the sun. The trouble is that the extra amount being added is trapping extra heat, so the planet is warming up more quickly than ever before. This is often called **global warming**.

Over the next hundred years we may be enjoying warmer winters and hotter summers – does this matter, you may be wondering? How can it affect wild animals and their habitats? Well, it's not the extra warmth that will be the problem, but the changes it will bring to the land and the seas. There are already signs that the ice is breaking up and melting at the Poles and sea levels are rising; certain types of plant are

beginning to find it hard to continue to grow in their habitat, which will affect animals along the food chains. In the years to come, some animals and plants may become extinct because they find it difficult to adapt quickly to their changing habitats. In the past, when climate changes happened slowly, they had time to become used to the changes in their surroundings. The animals already threatened with extinction will probably be most affected by the fast-changing climate.

## Hungry polar bears

Polar bears spend the winter hunting seals on the frozen Arctic Ocean. Warmer temperatures are melting the ice, reducing the bears' hunting grounds.

A lack of their important winter food is causing polar bears to become thinner and mother bears are finding it difficult to produce enough milk for their cubs.

**Can you find any more examples of how the changing climate may be affecting endangered animals?**



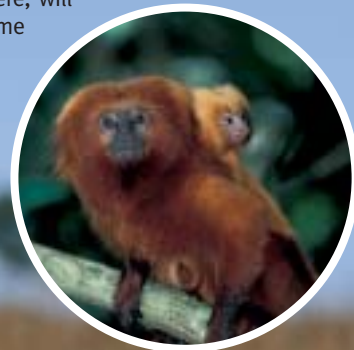
Polar Bear

Today there are many organisations all over the world that are trying to save wildlife from extinction. Ways in which they are helping include **habitat protection**, setting up **nature reserves** and **captive breeding** (breeding rare animals in zoos and sometimes releasing them into the wild). Governments have helped by making special laws and agreements to protect endangered animals and their habitats. For example, many countries have agreed to stop hunting whales. Unfortunately, these laws are sometimes difficult to enforce and illegal hunters are still killing some species, such as the **black rhinoceros** whose horn is very valuable. In some areas rainforests are being illegally cut down.

**SUCCESS STORY!** The **golden lion tamarin**, a tiny monkey with beautiful

golden fur, is one of the most endangered mammals in the world. It is found only in a small area of untouched rainforest along the east coast of Brazil, not far from the city of Rio de Janeiro. During the last four hundred years thousands have been caught and sold as pets, but it is mainly the destruction of their forest home that has made them so endangered. In 1970 there were only about 200 tamarins left in the wild! Fortunately, in 1972, conservationists from the USA and Brazil decided to try and release a few captive-bred tamarins into the forest, and, after the fifteen chosen monkeys, brought to Brazil from an American zoo, had got used to the local sounds, smells, food and climate, they were finally released into the forest in May 1984. Their new home is part of a special nature reserve and

conservationists have been keeping an eye on them to see how they have progressed. Good news! Despite natural predators, fires and floods, the little monkeys seem to be surviving well. More have been released and now there are at least 1000 golden lion tamarins in the wild! Let us hope that enough of the precious rainforest can be saved so that the tamarins, and all the other species that live there, will never become extinct.



Golden Lion Tamarin

Black Rhinoceros

# Saving Endangered Animals

## You can help too!

It certainly can be frustrating for us, here at home or school, wondering how we too can help to protect the wildlife of the world! One day perhaps, you may be a scientist and specialize in conserving wildlife. For the moment though, one of the best things you can do is to learn as much as possible about the wild habitats of the world and the wonderful (and sometimes weird!) wildlife that lives in them. Watch wildlife television programmes, read wildlife books, find out more from the Internet (website suggestions on the right). It's a good idea to learn about other countries, but don't forget your own surroundings! You can learn such a lot just by watching the

wildlife in your own garden and providing it with safe habitats. You may even attract an endangered species into the garden, therefore actively helping it!

Perhaps you can find out if there are any nature reserves, perhaps woodland, heathland or coastal habitat, in your local area. If so, try and visit them with your family and learn about the animals that live there.

If you spend a holiday in another country, be careful not to buy a souvenir that may be made from an endangered animal. Many articles on sale in tourist shops abroad are made from animal body parts e.g. skin, feather, fur, shell, bone, ivory – they may have come from an endangered species and they could be confiscated by Customs when you return to Britain. If every tourist refused to buy this type of souvenir then it would save the lives of quite a few endangered species.

## Try these!

If you are interested in finding out more information, go to these websites...

**The Barn Owl Trust** [www.barnowltrust.org.uk](http://www.barnowltrust.org.uk)

**The Bat Conservation Trust** [www.bats.org.uk](http://www.bats.org.uk)

**The BBC's Science & Nature Children's Zone** [www.bbc.co.uk/nature/reallywild](http://www.bbc.co.uk/nature/reallywild)

**British Trust for Conservation Volunteers** [www.btcv.org](http://www.btcv.org)

**Butterfly Conservation** [www.butterfly-conservation.org.uk](http://www.butterfly-conservation.org.uk)

**Convention on International Trade in Endangered Species** [www.cites.org](http://www.cites.org)

**The Mammal Society** [www.mammal.org.uk](http://www.mammal.org.uk)

**Marine Conservation Society** [www.mcsuk.org](http://www.mcsuk.org)

**The Otter Trust** [www.ottertrust.org.uk](http://www.ottertrust.org.uk)

**People's Trust for Endangered Species** [www.ptes.org](http://www.ptes.org)

**Wild About Gardens (Wildlife Trusts' & Royal Horticultural Society's joint project)** [www.wildaboutgardens.org](http://www.wildaboutgardens.org)

**World Conservation Union's 'Red List' of world's endangered species** [www.redlist.org](http://www.redlist.org)

**Worldwide Fund for Nature** [www.wwf.org.uk](http://www.wwf.org.uk)

**Young People's Trust for the Environment** [www.yptenc.org.uk](http://www.yptenc.org.uk)

## Email us now to continue receiving Conservation Education!

From the Summer Term of 2006 Conservation Education will become an electronic document and we will no longer produce paper copies. This is a measure that both cuts costs and helps the environment by saving paper. Each issue currently costs YPTE around £9,000 to write, design, print and mail. In the absence of a sponsor, the costs of the last six issues have been met by YPTE but this situation is unsustainable, and the decision has been taken to cease production printed copies of Conservation Education for the time being.

To ensure that you continue to receive your electronic copy of Conservation Education

via email, please send an email with the subject 'Con Ed Yes' to [info@yptenc.org.uk](mailto:info@yptenc.org.uk) giving us your name and school/organisation's postal address. You will then be sent an email each time a new issue of Conservation Education is available for download.

Electronic versions of all issues of Conservation Education are available from our website [www.yptenc.org.uk](http://www.yptenc.org.uk) All future editions will also be downloadable from the website. Circulation of printed copies of Conservation Education will be resumed as soon as we are successful in obtaining onward funding.

## YPTE needs your help

Throughout 2005, the Young People's Trust for the Environment has continued to supply its valued services to schools and young people throughout the UK. Our two speakers have given well over 500 talks in over 300 schools to audiences totaling 40,000 young people. Almost 100,000 young people and teachers have visited our website in search of information and environmental news, written specifically for them. Hundreds more have attended our residential Environmental Discovery Holidays and Courses. We have produced and mailed three issues of Conservation Education to each of our 6,000 member schools. Many young people have participated in competitions devised by YPTE, including **Making Waves in your Community** in northeast England, and the Young Environmentalist of the Year Awards, which attracts entrants from across the globe.

However, 2005 has also been an extremely poor year for funding, and YPTE is now in a position where it needs your help. If you have enjoyed using our services, please consider making a donation to the Young People's Trust to ensure that we can continue our vital work.

Young people hold the planet's future in their hands. With your assistance, we can help them to see how to handle it with care.

## Get online to find out more about YPTE

For free, fully-searchable information and news stories for young people and schools, and to find out more about our residential courses for school groups, see our website: [www.yptenc.org.uk](http://www.yptenc.org.uk) You can book a free school talk online if your school is within 100 miles of our school speakers, based in Guildford and Penrith.



# NEWS

# Nature



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