

Shell beads point to dawn of modern human behaviour

WE OFTEN judge other people by their possessions – the clothes we wear and the things we own can advertise our wealth, status and social allegiances. But when did this start?

A study by an international team of researchers has confirmed that 80,000-year-old shell beads found in North African caves are some of the earliest evidence for the use of personal ornamentation.

The research shows the shell beads were common across North Africa until they fell out of use around 70,000 years ago. Previously, the shells were known from only a few scattered examples. 'We are no longer looking at isolated or one-off events,' says Professor Nick Barton of the University of Oxford, one of the study's authors. 'We can now document the shells at a number of different locations in North Africa all of about the same age,' he adds.

The beads suggest that the people alive at the time were acting much like modern humans. 'There is a problem with linking



A selection of shell beads from Taforalt, with an unmodified modern shell far right.

anatomically modern humans with behaviourally modern humans,' Barton explains. 'These people may have looked like us, but were they behaving the same?' he adds.

The beads suggest the people who made and wore them behaved in ways we would recognise. Using symbolic items like beads to communicate ideas about the wearer requires skills unique to modern humans, including well-developed language and the ability to use abstract concepts.

The researchers analysed 25 beads from four sites in North Africa from the Middle Palaeolithic period. The beads, consisting of the shells of sea snails called *Nassarius*, had been transported some distance from the marine environment in which they're usually found, and showed evidence of deliberate alterations.

'We found evidence they had been strung together as in a necklace or bracelet,' said Barton. The shells had been perforated using stone tools, and wear marks around the

perforations indicated the shells had been threaded on a string. Several had also been covered with red ochre pigment and one shell showed evidence of heating, possibly to alter its colour.

But what purpose did the coloured beads serve? 'What they were signalling, we're not entirely sure,' said Barton. 'Possibly they were an insurance policy, if you had shared access to certain resources and wanted to identify yourself to members of another group.'

Ticks provide anti-clotting drug

SCIENTISTS have tapped into nature's medicine chest to develop a drug that can control blood flow and prevent clotting, potentially preventing strokes or heart attacks.

The UK and Slovakian research team discovered and isolated an anticoagulant, or anti-clotting agent, from the salivary glands of ticks. They believe the ticks secrete the anticoagulant to keep their host's blood flowing while they feed.

Recognising the potential for this natural anti-clotting

agent, which they called Variegin, the researchers teamed up with experts in snake venom peptides from the National University of



Singapore, who used chemical synthesis to reproduce Variegin and make it more potent.

'By synthesising and modifying the anticoagulant our partners in Singapore were really able to understand how it works and to improve its functions,' explains Professor Patricia Nuttall from the UK's Centre for Ecology & Hydrology.

'As well as enabling blood to flow freely, we may now be able to stop the effect so that clotting is restored,' she adds. 'This is an important breakthrough as it will potentially enable the

development of new blood-controlling drugs with a much better performance level – and therefore fewer adverse side effects – than some of those currently available.'

The researchers' efforts to improve the compound have produced molecules of different sizes, levels of potency and durations of effect. 'One of the molecules has 70 times more potency and anti-clotting effect than a drug that is currently on the market,' says the National University of Singapore's Dr Cho Yeow Koh.

Warming waters release methane plumes into Arctic sea

SCIENTISTS have found more than 250 plumes of methane gas rising from the seabed near Svalbard in the Arctic Circle.

A paper in *Geophysical Research Letters* details the findings, made on an expedition on the British research ship RRS *James Clark Ross*.

Scientists from Birmingham University, the National Oceanography Centre, Southampton, and Royal Holloway University think the gas is being released from methane hydrate beneath the seabed, which is melting because of warming waters above.

Similar plumes have been found in places like the Black Sea and the Gulf of Mexico, but this is the first time scientists have found them where their occurrence can be clearly attributed to climate warming.

'People have predicted this for several years, and methane from hydrate beneath the seabed has been strongly appealed to by scientists looking to explain past climate shifts,' says Professor Graham Westbrook, a geophysicist at Birmingham University and one of the paper's authors. 'But this is the first time anyone's discovered a situation where it actually seems to be happening now as a result of rising water temperatures,' he adds.

Methane hydrate is a solid material composed of water and methane. It forms at high pressures and low temperatures. 'Hydrate looks just like ice, but when you get it to the surface it begins to fizz – once you remove it from the stability zone it immediately starts breaking down to methane gas and water,' says Westbrook. 'You can even set light to it – you end up with what looks like a piece of ice in your hand, with flames coming from it.'

The West Spitsbergen current, which flows northward through the area, has warmed by 1°C over the last 30 years. Westbrook believes this is causing the upper levels of hydrate deposits to break down.

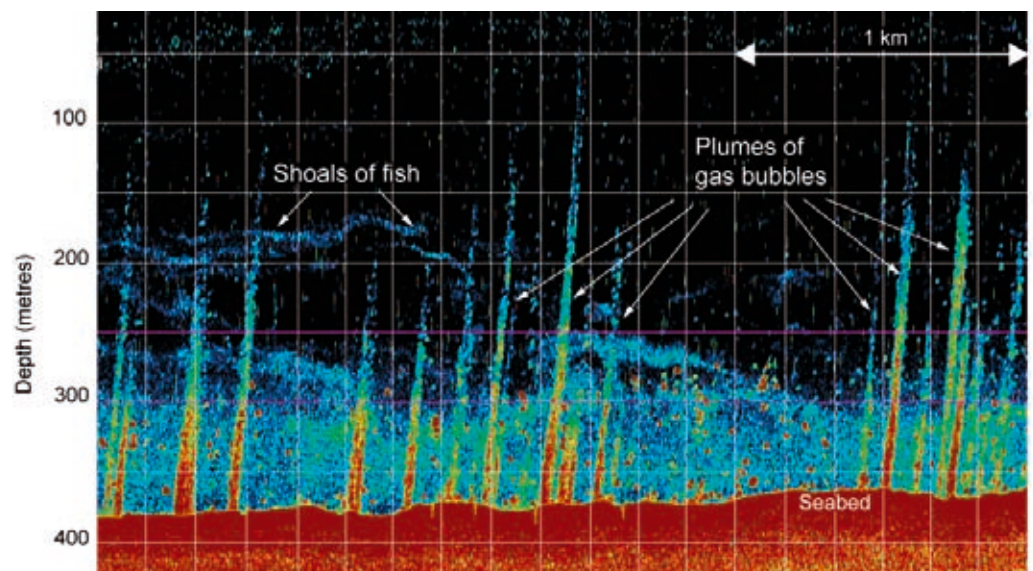
If this happened across the Arctic, large amounts of methane could be released. And if this reached the atmosphere, it could potentially contribute to climate change, leading to a vicious circle of more methane leading to higher temperatures, in turn melting more hydrates.

But Westbrook remains cautious about any potential impact on the climate. Few of the gas bubbles reach the surface, and in those that do much of the original methane has dissolved into the surrounding waters on the way up.

Concerns remain, though. Dissolved methane makes sea water more acidic, and this could add to the growing problem of ocean acidification, which has so far largely been due to dissolved CO₂.



Water bottle rosette with 24 bottles at the side of the RRS *James Clark Ross*. The bottles are opened at pre-selected depths, as the rosette is lowered through the water, to take samples of the water near the gas bubbles.



Sonar image of plumes of bubbles emanating from the seabed. The strength of acoustic response is given by the colour (blue is weak; red is strong). The plumes are deflected towards the north by the West Svalbard current. Also shown are images of fish as wavy, near-horizontal blue-green zones of reflectivity.



Caribbean slaves came from different parts of Africa

SLAVES buried at the Newton sugar cane plantation on Barbados were abducted to a life of slavery from different regions in Africa.

'We knew from historical records that the plantation was worked by African slaves,' says archaeologist Dr Hannes Schroeder, who led the research while working for his PhD at the University of Oxford. 'But now we have a method that lets us identify first-generation captives among the burials and trace their origins back to their native Africa.'

Previous research at Newton mainly focused on the slaves' nutrition and physical quality of life. But their origin remained a mystery – how many of them had been born in Africa rather than Barbados? And where in Africa had they come from?

The team collected bone and tooth samples from the skeletons of 25 individuals, hoping to find clues in their isotopic composition. Not every atom of an element is the same; some are heavier than others and the proportion between different atom types, or isotopes, gives information about diet and environmental conditions.

'Isotope analyses provide a reliable way to identify migrants in archaeological populations,' says Schroeder. The team found that the teeth of seven individuals had distinct carbon and nitrogen

isotope signatures, lower than average. But their bones held higher carbon and nitrogen isotope ratios, similar to the rest of the group.

Schroeder explains: 'Bone tissue remodels throughout life whereas teeth remain the same after they are formed. If the isotopic ratios vary between the bones and teeth of a single individual, then this suggests a major change in diet and possibly residence at some point during life.'

For the individuals from Newton, the change occurred when they were abducted from their native Africa and transported to a life of slavery in the Caribbean.

The results, published in the *American Journal of Physical Anthropology*, also show the slaves did not all come from the same region in Africa.

Some were raised on a diet rich in crops adapted to hot conditions, such as sorghum and millet, while the others grew up eating crops like rice and yams. 'The slaves might have come from different areas in Africa, as widely apart as the Senegambia, where people to this day still subsist largely on rice agriculture, and the Gold Coast, for example,' says Schroeder, who now works at the Centre for Ancient Genetics of the University of Copenhagen.

X-rays bring extinct spiders back to life

PALAEONTOLOGISTS have brought an extinct group of spider-relatives back to life with a new way of analysing fossils inside lumps of rock.

The cutting-edge technique lets scientists see tiny details of the critters' bodies without damaging the samples.

It uses high-resolution X-ray images, taken by a machine akin to the CT-scanners employed to detect tumours in hospital patients.

For his PhD at Imperial College London, Russell Garwood used the Natural History Museum's CT-scanner to look at two species of spider-like animals from the trigonotarbid group.

'Trigonotarbids are extinct arachnids that lived more than 300 million years ago,' he explains. 'They looked very similar to modern spiders, but they couldn't make silk and the back half of their body was split into small plates.'

Their fossilised remains usually occur within hard lumps of iron carbonate rock called concretions. Previously, scientists had to crack the lumps open to observe the fossil. But they could see only what was revealed along the crack, not the portion of the creature still hidden in the rock.

Garwood and colleagues focused on two trigonotarbid species, one well-studied, the other a member of a poorly-understood subgroup.

They took over 3000 X-rays and combined the images into three-dimensional models of the two fossils. The digital images and films, published in *Biology Letters*, reveal minuscule details as small as tiny claws and spines and many new morphological features.

The 3D model let Garwood identify for the first time defensive spikes in the well-known *Eophrynus prestvicii*. 'We also confirmed that their fangs face downwards and backwards, in a different orientation to modern spiders' fangs,' he adds.

In the other specimen, Garwood discovered growths inside the legs and claws on the limbs – features never seen before in this group of fossils. 'The amount of detail we can see in these images promises to revolutionise the study of iron carbonate concretion fossils,' he says. 'It's nice to see these in so much detail,' he adds. 'It almost allows us to see them as they were when they roamed the Earth over 300 million years ago.'



Courtesy of The Natural History Museum, and Imperial College, London

Kirsty Bain - Fotolia.com



Orangutans show unique moves

ORANGUTANS can move in unique ways specially adapted to getting about in the rainforest canopy.

Researchers believe their tactics are unlike those of any other ape species, and let orangutans cross thin branches, sway trees together to move between them, and find the tastiest morsels of food, according to a study published in *Proceedings of the National Academy of Sciences*.

Understanding how the apes move can tell us about the kinds of habitat they need, and so help protect them from extinction.

Some of orangutans' movement styles are probably retained from the common ancestor of all the great apes, which is thought to have lived almost entirely in the treetops, like orangutans but unlike other apes such as chimpanzees and gorillas.

These species have become adapted to spending part of their time on the ground; because of this, they've lost some of their special adaptations for treetop living.

Orangutans still inhabit what ecologists call the 'terminal branch niche', venturing out onto thin boughs to find fruit and to move from tree to tree while rarely setting foot on the ground. They retain the upright body posture that's thought to have characterised the ancestral ape.

Other distinctive orangutan behaviours have probably evolved since the species diverged from the other great apes.

Dr Susannah Thorpe, a lecturer at the University of Birmingham, spent a year studying ten Sumatran orangutans in the wild in Indonesia.

She identified several ways of

moving between branches that seem to be unique to them, such as using all four limbs to scramble across gaps between trees, with each limb grasping any available support.

Other apes, like chimpanzees, move differently in trees, relying on bent limbs to absorb unexpected shocks and keep them stable. Thorpe believes that understanding orangutans' habitat needs can help us conserve them.

'Understanding the kinds of support orangutans need to move on will help us better understand the kinds of habitat and movement pathways they need,' she argues.

Orangutans are at risk of extinction, partly because their rainforest habitat in Indonesia and Malaysia is being devastated as trees are cut down for timber and to clear room for palm-oil plantations.

PlanetEarth online

PODCASTS

Planet Earth *online* has launched a brand new fortnightly podcast to coincide with the start of the British Science Festival. Highlights of the first installment include:

Hear British Antarctic Survey's David Vaughan talking to Sue Nelson about polar ice, sea-level rise and how this could affect us.

Richard Hollingham finds out about the threats disused mines in Northern Ireland pose to the public.

And discover how male red deer's hectic lifestyles bring them to an early grave, find out about the origins of fashion – and why show-offs may not be such a good catch after all.

To listen to Planet Earth *online* podcasts, go to <http://planetearth.nerc.ac.uk/multimedia>, or visit iTunes and search for 'Planet Earth Online'.



LATEST SCIENCE NEWS

- Thermal cameras show hot moulting seals.
- Why small can be beautiful when attracting wildlife to your garden.
- Using earthquakes as seismometers.

Does old barley hold key to drought resistance?

A LONG-LOST barley variety farmed for thousands of years in ancient Egypt may hold the key to drought-resistant crops, as scientists uncover the secrets of its ancient DNA.

The extinct barley variety was rediscovered in the ruins of Qasr Ibrim, south of Aswan. The barley was cultivated for 3000 years, until the early 19th century.

But while elsewhere in Africa farmers preferred the high-yielding six-row variety, generations of Qasr Ibrim settlers grew barley with two-rowed spikelets. Six-row barley evolved from the two-row variety 8000 years ago, due to a single genetic mutation. This change means six-row barley produces up to three times as many grains as its ancestor and contains more protein.

Dr Robin Allaby, who researches the evolution of domesticated plants at the University of Warwick, wondered why the Qasr Ibrim farmers consistently preferred two-row barley.

His team extracted DNA from two-row barley grains from throughout the area's occupied history. They could recover DNA from 2900-year-old samples because the area's dry climate protected the grains from rot.

The results were surprising; Qasr Ibrim's two-row barley is



Dr Robin Allaby.

Warwick HRI, The University of Warwick

unique because it evolved from a six-row ancestor, and carries a gene that cancels the effect of the previous mutation. This is the first report of two-row barley evolving from a six-row variety.

'Since six-row barley is more prolific and produces much more grain, it's difficult for the two-row plants to prevail, unless there is strong natural selection pressure

to favour this condition,' says Allaby. He thinks farmers may have chosen to grow the two-row type despite its lower yields because of dry conditions.

He explains: 'Qasr Ibrim is located in the upper Nile which is very arid relative to the lower Nile where six-row remains are found, and we know from previous studies that two-row barley can

survive water stress better than the six-row variety.'

The findings, published in *PLoS One*, have important implications. 'If these ancient crops are indeed better adapted to arid conditions,' says Allaby, 'the study of their DNA can lead to the development of new crop varieties better prepared to deal with today's climate change challenges.'

Pine Island Glacier thinning faster than thought

ONE OF Antarctica's greatest glaciers is thinning so quickly that its main body could disappear within a century. This is 500 years sooner than previously estimated and jeopardises a volume of ice that could raise global sea levels by around 25cm.

Researchers reported just eight years ago that Pine Island Glacier in West Antarctica could be lost

within 600 years, but now they say satellite data covering a longer period of time mean they are able to estimate more accurately.

Research led by Professor Duncan Wingham of University College London suggests that the glacier's thinning has accelerated and spread inland. The team calculates that the central 'trunk' of the glacier lost four times as

much ice in 2006 than it did in 1995: around 10.2 km³ compared with 2.6 km³.

Pine Island Glacier is one of a handful of glaciers that transport huge amounts of ice from the West Antarctic Ice Sheet to the sea. It moves more ice than any other Antarctic glacier and is the fastest moving in the entire continent.

Although scientists have long considered the glacier to be a potentially unstable region, it lies in an inhospitable region of West Antarctica that has proved difficult to reach. This means researchers have had to wait for recent satellite measurements for an accurate idea of its state. Their work appears in *Geophysical Research Letters*.

Root fungi turn rock into soil

SCIENTISTS have long known that trees help break down barren rocks into soil – but it turns out that tiny fungi living on their roots do most of the heavy lifting.

The fungi bend the structure of certain minerals, weaken their crystals and then remove useful chemicals to pass on to their host tree. During the process, the rocks change their chemistry, lose their strength, and in the long run become soil.

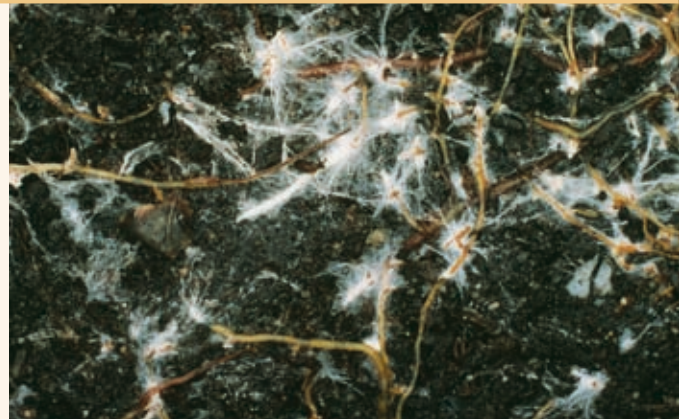
These hard-working fungi are called mycorrhiza and cover tree roots like gloves. They are extremely small and thin, but are found everywhere. 'It is estimated that every kilogram of soil contains at least 200km of fungi strands,' says Dr Steeve Bonneville from the University of Leeds, an author of the study appearing in *Geology*.

Bonneville explains:

'Mycorrhiza have a perfect business relationship with plants and especially trees.' They help the plant get nutrients from the soil; in return they receive part of the carbon produced during photosynthesis.

Mycorrhiza were known to play a major role in soil formation – but how do they do this? 'We created the first experiment that closely copies a natural system to find out how mycorrhiza help to break down minerals,' says Professor Liane G. Benning, also at Leeds, the project's principal investigator.

Together with colleagues at Sheffield, the team planted a Scots pine seedling with the fungi *Paxillus involutus*. 'This is a very common tree-fungi association that occurs naturally in boreal forests,' says Bonneville. The tree and fungi were allowed to grow together for about 10



Dr Jeremy Burgess/Science Photo Library

weeks and were then placed in a transparent pot with flakes of biotite, a common rock-forming mineral rich in potassium, iron and magnesium.

The seedling's roots became covered with fungi, which soon attached to the biotite. After three months, the scientists removed the biotite from the experiment and sampled the crystal along a single strand of fungi-covered root.

They found the fungi put pressure on the minerals that can

be as high as the pressure in an average car tyre. This means the biotite starts to bend and loses its strength.

'Once the crystal structure is weakened, the chemical changes start,' explains Benning. The mycorrhiza removes potassium and other nutrients from the biotite, passing them on to the tree roots. Without potassium, it breaks down into minerals common in soils.

Restoration is good, but conservation is better

ECOSYSTEMS damaged by human activities can be partially rehabilitated – but they can rarely be restored to their original pristine state, according to a study reported in *Science*.

Researchers have used restoration ecology to combat

the negative effects of human activities, such as logging, mining or pollution for the last 40 years. But until now, scientists didn't know how effective their strategies were at restoring the biodiversity of ecosystems.

'There haven't been any

systematic reviews or large studies to work out when and where restoration works,' says Professor James Bullock of the Centre for Ecology & Hydrology, the study's co-author.

To test how effective restoration projects are, Professor José Maria Rey Banayas of the University of Alcalá in Spain led a team which analysed 89 restoration studies from every continent except Antarctica.

They looked at projects in tropical, temperate, terrestrial and aquatic systems, comparing restored systems with degraded systems and the original pristine environment.

Some projects were classed as passive restoration, where, for example, a logged area was left to regenerate on its own.

Others took more intensive approaches, like building artificial reefs where coral had been damaged. Some were less than five years old; others date back three centuries.

They found that on average restoration improved biodiversity by 44 per cent, with tropical terrestrial projects the most successful. But biodiversity in the restored systems never returned to its original pristine state. Although encouraging, the results suggest restoration is not a quick fix.

'You can't say "don't worry, do what you like and we'll come in afterwards and restore it." That's not going to be the case. A better approach would be to conserve pristine environments in the first place,' says Bullock.



An artificial reef.

More evidence doesn't change minds

MORE AND BETTER scientific data on climate change will only convince the convinced – a new study shows that people will question the research behind climate change if the results clash with their beliefs.

The findings come from a study of people's attitudes to climate change, and how beliefs are formed and maintained.

'We found that scientific information on its own offers only a weak motivation for people to change their behaviour,' says Professor Mike Hulme from the University of East Anglia and Tyndall Centre for Climate Change Research, who led the research with Dr Irene Lorenzoni.

The study analysed the views of British and Italian citizens about the future economic and social effects of climate change. The researchers first assessed people's opinions with a general questionnaire about climate change and its effects.

They grouped the public into four categories – Engaging, Uninterested, Doubting and Denying – according to the importance assigned to climate change and their belief in humans' role in causing it.

The team then spoke to members of each group in more detail. Volunteers considered three alternative futures, 50 years from now. Each scenario presented a future where various policies – government control,

local stewardship or global sustainability – have different effects on climate change and the world's society and economy.

All participants were aware of the climate change debate and were surprised by the differences in temperature increase presented in the three scenarios, according to the report in *Public Understanding of Science*. But they interpreted the three scenarios in different ways.

The Engaging group expressed some doubts about the big differences between models, but overall found them credible.

But the Denying group – people who do not see climate change as a real danger – were suspicious, concluding that the scenarios were not scientifically credible.

The difference in attitudes comes from the participants' personal views: for the Denying group it's easier to question the scientific data than to adjust their ideas about climate change, argue the authors. The Engaging group, those already convinced of the dangers of climate change, found the new evidence easier to assimilate.

This means that 'just more science or communicating science to people with louder voices will not change any minds – we have to engage with people's beliefs and values to make a difference and change behaviours,' says Hulme.

Hedgehogs exposed to rat poison



Susanne Guther/Foodia.com

RAT POISON may have its uses in the fight against unwanted rodents, but it's producing unwanted side effects; more than half of British hedgehogs show traces of the anticoagulant chemicals.

'Hedgehog populations are thought to be declining all over Britain,' says Dr Claire Dowding, who examined the problem as part of her PhD at the University of Bristol. 'Anticoagulants might be having a huge impact, and we hardly know anything about their effects.'

Anticoagulants are chemicals used to kill rats and mice. They thin the blood, making rodents bleed to death. When used properly, they are an effective pest control, but if instructions are not followed carefully the poison can end up in other animals.

Animals like foxes and owls are often exposed to anticoagulants by feeding on poisoned prey, but Dowding and colleagues found that even hedgehogs, which feed mainly on insects, slugs and worms, are heavily exposed to anticoagulants all over Britain.

They analysed 120 dead hedgehogs that had been brought to wildlife hospitals, most of them injured in accidents. Dowding analysed their livers looking for traces of anticoagulants.

The results, published in *Environmental Pollution*, show that 80 hedgehogs had been

exposed to rat poison. 'The number of animals affected is quite worrying,' says Dowding, who says levels of poison were also unexpectedly high.

Although few hedgehogs showed clear signs of anticoagulant poisoning, such as internal bleeding, the chemicals 'might be affecting their breeding success, mobility or appetite,' says Dowding, 'or large numbers may be dying out of sight of the general public.'

'The key to the problem is to find out how they are getting exposed to the anticoagulants,' argues Dowding – but this could be difficult. Hedgehogs don't feed directly on rodents, so it's unclear how they are coming into contact with the poison. 'They might be eating the poisoned bait directly or be scavenging on dead rodents,' she suggests. 'The most likely possibility is their diet.'

Slugs and snails – the hedgehogs' favourite meals – can get exposed to rat poison by feeding on the poison directly, poisoned rat carcasses or faeces. They are not affected themselves, but they can pass the chemicals on to the hedgehogs.

Until we know the full effects of the poison and the exposure mechanism, the only way to prevent hedgehogs from suffering is to use anticoagulants sensibly and follow the instructions carefully, Dowding says.



Bird size could show ecosystem health

CLIMATE CHANGE is making British great tits thinner, once the effects of predators are taken into account.

A recent study shows that warmer winters are letting the birds get away with lower average weights, since they don't need such big reserves of energy.

But the picture is complicated by the way birds react to the presence of predators. Their response depends on whether food is scarce or abundant.

The research suggests that monitoring how small birds handle the tradeoff between the risk of starvation and that of being caught by a predator could provide a sensitive index of the health of their environment.

A team of scientists led by Dr Will Cresswell, a reader in behavioural ecology at the University of St Andrews, studied data on the mass of great tits between 1994 and 2007. This information came from long-term work by volunteers from the British Trust for Ornithology who capture birds and record key information before ringing and releasing them.

The researchers then compared the data on bird mass with records of weather conditions – used as an indicator of the difficulty of finding food – and estimates of the abundance of sparrowhawks, the great tits' main predator.

Generally, birds like great tits put on weight for winter; fat reserves let them survive cold spells when food is scarce. But they don't want to get too fat. Carrying more weight means they need more food each day, and fat birds are slower and less likely to escape from predators.

So birds tend to take advantage of mild weather by becoming less fat. In a warm autumn, species like blackbirds often seem



skeletally thin – there is so much food around that they don't need to build up fat reserves.

Since the 1960s, winter average temperatures have increased in some areas by 3°C. 'In general, climate change is making life easier for great tits and other small birds,' Cresswell says. Accordingly, great tits are getting lighter.

The effects of predators complicate the story, though. The researchers found that if great tits have a relatively benign environment to forage in – during a very mild winter, for example – they can afford to put on weight as insurance, since the ready availability of food means they can spare more time to hide from predators to which their weight would otherwise make them more vulnerable.

'The predator has effectively made the bird's foraging environment more unpredictable, just like colder weather does,' explains Cresswell. 'It's harder to meet your energy needs if you have to spend half the day hiding.'

This isn't a major problem in good conditions. But in a very

difficult foraging environment, birds can't afford to waste time hiding. They have to keep feeding despite the danger of being eaten – and this means it becomes an advantage to be thinner and more agile.

The effect is that birds respond to increased risk from predators by getting fatter when there's plenty of food available, but by losing weight when conditions are difficult.

The findings, published in *Proceedings of the Royal Society B*, imply that keeping an eye on the mass of small birds could provide clues to how whole ecosystems are functioning, and perhaps early warning of dangerous trends.

'If great tits were showing greater than average mass during winter, but their mass suddenly began to drop, it would indicate that the foraging environment had changed so that there was less food available,' says Cresswell. 'Current methods of environmental monitoring are quite expensive, and this could give us an alternative.'

IN BRIEF

RRS James Cook rescues Atlantic rower

In late August the NERC research ship RRS *James Cook* picked up Peter Bray, who had sent out a distress signal after getting into difficulties 43 days into his attempt to row single-handed across the Atlantic to raise money for charity. The ship was carrying scientists on a six-week expedition to the Mid-Atlantic Ridge, the chain of underwater mountains that runs along the middle of the ocean floor, to study the animals that live in the very depths of the Atlantic. Bray was eventually returned to UK soil when the ship returned to port in Falmouth in September.

Ban Ki-moon visits NERC Arctic Station in Svalbard

United Nations Secretary General Ban Ki-moon visited Ny-Ålesund in the Arctic Circle in early September, ahead of December's UN Climate Change Conference in Copenhagen. During the visit he was briefed on the work being carried out at the NERC Arctic Station.

European Space Agency arrives in Oxfordshire

The European Space Agency (ESA) opened its first UK facility at Harwell in Oxfordshire in July. The facility will form part of a wider vision for the future of the UK's space economy, which will see the creation of an International Space Innovation Centre (ISIC) to bring together academia and industry and boost innovation in space science and technology.