

READING PASSAGE 3

Answer *Questions 27 – 40*, which are based on the text below.

The Bug Picture

Lara Zanarini gives her view on insects

How many other species do we share our planet with? The truth is that scientists don't have the slightest idea. Some early guesses of 30 million or even 100 million have been replaced in the last few years with more reliable ones of somewhere between five to ten million species. But despite this massive uncertainty there is one thing which is indisputable: the vast majority of Earth's inhabitants are invertebrate – without a backbone – and most of those are insects.

It is therefore not very surprising that these creatures have a pre-eminent impact on the functioning of global ecosystems. Creatures like us – and I don't just mean primates (such as apes and monkeys), but all vertebrates (back-boned animals) – make up less than three percent of all species.

Yet it is these very animals that most people hold dear, especially those with a passing resemblance to ourselves. I use a slide in my lectures which has images of all sorts of insects along with one face-on image of a female slender loris, a wide-eyed furry primate, with a baby on its back. No prizes for guessing the first, and probably the only, thing audiences look at. It seems we can't help ourselves. Appealing they may be, but in the great ecological scheme of things, they are fairly useless. If you really want to understand the world around you – you need to take a serious look at insects.

Pollination, the process by which flying insects transfer grains of pollen from one plant to another and so aid their reproduction, is perhaps one of the most essential partnerships ever to have evolved. This plant-insect version of 'I'll scratch your back if you scratch mine', has been around for 100 million years and it has given the world a rich diversity, and not just of flowering plants. Twenty thousand species of bee are responsible for the continued survival of the angiosperms, which includes a very long list of fruit and vegetables from pumpkins, plums and peas to cherries, cucumbers and cocoa.

What about herbivory and carnivory – plant- and meat-eating? Ecology really doesn't get much more basic than this. The light energy from the sun is converted to chemical energy and the plants – the producers – that carry out this astonishing transformation are fed on by primary consumers – the herbivores. They in turn are eaten by secondary consumers – the carnivores. But it may come as a surprise to many that all the herds of grazing ungulates – cows, goats and sheep – are entirely 'out-munched', perhaps by a factor of ten to one, by myriads of tiny insects. What about the meat-eaters? Again, insects consume many times more animal flesh than all vertebrate carnivores put together, and ants alone are the major carnivorous species in any habitat you could mention.

If this sounds implausible, consider that although insects are individually small, there are an awful lot of them – an estimated ten million, million, million (10¹⁹) with an impressively large biomass*. Insects are also the major food source for countless species. Many trillions of creatures a year are eaten by insect-eating species of birds, bats and a

multitude of other furry and feathery animals. Space prevents me from extolling the role of insects in global decomposition and nutrient recycling.

But there is a problem looming – the first effects of which we are already feeling. Almost every study that has been done to date points to a steady decline in insect species' richness and abundance. The loss of natural habitat and the prodigious amounts of pesticides used in agriculture are taking their toll. The decreases seen in well-studied insect groups such as bees and butterflies are surely taking place in many other groups as well. At what point does the web of life become so frayed that it starts to disintegrate? We may find out sooner rather than later.

It is thought that the world's tropical forests hold more than half of all extant species. If these complex habitats are being felled and degraded at even the slowest rate that has been suggested, it will still only be a matter of a few hundred years before they are lost. It is therefore an inescapable conclusion that our planet could lose more than half of all its living species in the time it takes for a tiny acorn to become a veteran oak tree.

There's no doubt about it – we are the most intelligent and capable species yet to evolve on Earth. In a very short time after our appearance we covered the entire globe, establishing colonies wherever it was possible to survive. A few of us have walked on the surface of the Moon and visited the deepest abysses of the oceans. We spend vast sums of money to probe the very make-up of matter and remotely examine other parts of our solar system. We want to understand the science of everything from the infinitesimally small to the astronomically large. This truly is 'big' science and of course it's expensive. But do we have to do it right now? What about understanding the environment a bit better? Perhaps what we actually need is a bit more 'bug' science.

* biomass: the total quantity or weight of organisms in a certain area

Questions 27 – 31

Do the following statements agree with the views of the writer in the text?

In boxes 27 – 31 below, write.

YES if the statement agrees with the views of the writer

NO if the statement contradicts the views of the writer

NOT GIVEN if it is impossible to say what the writer thinks about this

27 Early guesses probably greatly over-estimated the total number of species on Earth.

28 Primates play a significant role in the ecology of our planet.

29 We still have a great deal to learn about the importance of pollination.

30 Some people may be unaware that the world's insects consume more food overall than mammals.

31 It will take a long time for us to learn the effects of habitat loss and extensive pesticide use.

Questions 32 – 36

Complete each sentence with the correct ending, A – F, below.

Write the correct letter, A – F, in boxes 32 – 36 below.

- 32 Scientists have recently revised their views regarding
- 33 There is absolutely no doubt about
- 34 Almost every study done so far has indicated
- 35 A lot of research on insect groups has focused on
- 36 The rate at which tropical forests are being lost can help us calculate
- A a fall in the total number and variety of insects in the world.
B the number of plants that are pollinated by insects.
C how many different animal species are currently in existence.
D how long it will be before the Earth's biodiversity is drastically reduced.
E the predominance of invertebrates among the Earth's species.
F the declining numbers of bees and butterflies.

Questions 37 – 40

Choose the correct letter, A, B, C or D.

- 37 In the third paragraph, the writer refers to a particular slide to emphasise
- A the predominance of insects in the world.
B a common misunderstanding about global biodiversity.
C our instinctive reaction towards certain types of animals.
D the main distinction between vertebrates and invertebrates.
- 38 What does 'they' in the third paragraph refer to?
- A lectures about animals given by the writer
B audiences who attend events focused on insect life
C images which depict various different types of species
D creatures which appear comparatively similar to humans
- 39 What does the writer imply about 'big' science in the final paragraph?
- A It should not be our priority at the moment.
B It serves no useful purpose in the long term.
C It will cost an unreasonable amount in the future.
D It results from our natural curiosity about the world.
- 40 What point does the writer make overall about insects?
- A - Certain insect species are more at risk than others.
B - Insects are more important than many people realise.
C - There is an interdependence between different insect species.
D - The ecological role of insects is likely to change in the near future.