



extinctions



only 400 Siberian tigers are left in the wild; so although not extinct, like many creatures, they no longer play any meaningful role in the ecology of their natural range

what are they?

Extinction means the end of the line for a species. The natural rate of species extinction is about the same rate as the development of new species – around 1 species every 4 years. Species hang around on average for around 5 million years, and new species evolve to fill niches as others become extinct. Biologists estimate that we only know about 5% of all the species that exist. From known extinctions, scientists can extrapolate to estimate total extinctions. If habitats disappear, then so will all the animals and plants in it, whether we have discovered them or not.

What if the extinction rate was double the natural rate? Or 100 times? what if we told you that the world's top ecologists, biologists and botanists calculate the current extinction rate to be up to 10,000 times the natural rate? Would you wonder what the implications of that sort of rate might be? Here's what they're saying:

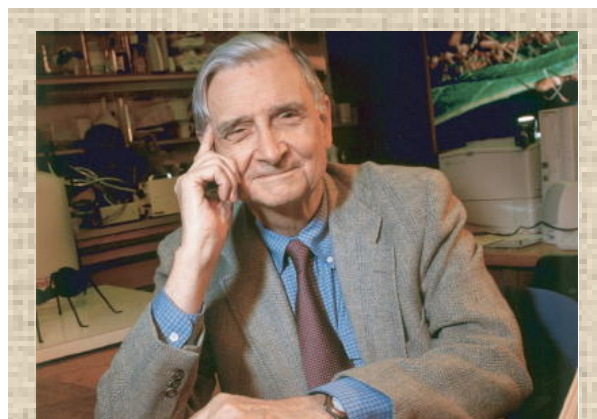
- E O Wilson: the current rate is 1000-10,000 times the natural rate
- American Museum of Natural History: 70% of biologists say this could be the biggest mass extinction ever
- Convention on Biological Diversity: current extinctions are 1,000 times the background rate
- Peter Raven (ex-President of the International Botanical Congress): we will lose 30-60% of all species during the 2nd half of this century
- International Union for Conservation of Nature: extinctions are currently around 1000-10,000 times the pre-human rate
- Pitman and Jorgensen in 'Science': current extinction rates are about 30,000 per year, which means we'll lose about half of all species by the end of this century

- World Resources Institute (Millennium Ecosystem Assessment) – 1000-10,000 times, and it's accelerating
- WWF: Living Planet Index, a study of hundreds of species populations from 1970 to 2000, found a 40% drop in populations
- Zoological Society of London: globally, we're losing around 1% of species per year

You don't have to be a mathematical genius to know that that can't go on for very long. But some people will contest the figures. They will claim to have better evidence than professional scientists who have worked in the field all their lives. Or they will oppose the kinds of things we will have to do to stop the extinctions on political grounds. They will work hard to rubbish their figures, or underplay the dangers of continued ecological damage on this kind of scale.

There have been 5 mass extinction events in history, including the one that did for the dinosaurs 65 million years ago (asteroid impact), and the biggest of all, 250 million years ago (volcanic activity), which led to the extinction of about 95% of all species – life on earth was almost completely destroyed. We're in the 6th mass extinction event now. A species may not be extinct, but it's numbers are so low that it doesn't really contribute to biodiversity (a diverse and healthy ecology). Species like pandas fall into this category. Less genetic diversity can damage ecology as much as extinctions.

The WRI: UK butterfly populations have declined by 70% in the last 20 years, and eel populations in Europe have declined by about 99% in 30 years! that's not extinction, but what has damaged nature so much that only 1% of eels can survive in our waters nowadays? It's not an asteroid, or volcanic activity - it's our activity. Extinctions have always followed humans around, but there are 7 times more of us, and our economy is 30 times



E O Wilson, probably the world's most respected biologist, thinks we should be very worried by the current rate of extinctions



bigger than in 1800. Now we are removing rainforest, overfishing, putting billions of tonnes of synthetic chemicals into the air, soil and oceans, urban areas are expanding, along with the transport infrastructure that joins them, as well as agricultural land, golf courses, resorts and out-of-town supermarkets. And it's accelerating. How can there be any room left for nature? These are the big contributors, in order of importance:

1. destruction and fragmentation of habitats
2. toxification of environment
3. overexploitation - removal of species / biomass
4. introduction of non-native species

what are the consequences?

Current extinction rates can't continue forever - there would soon be no species left at all. But well before then, there will come a point where the ecology of the planet doesn't work any more, as all species are interlinked in a complex ecological web (if David Attenborough taught us anything at all, surely that's it). For example, some plants need certain insects to pollinate them, and their seeds need to pass through other species to germinate; some species only eat one kind of plant or animal, some are parasitic, or have symbiotic existences, etc. Take enough species out and, like a game of Jenga, it looks fine until one too many goes, and it falls over.

Ecology delivers things that we need to survive – oxygen-rich air, soil fertility, fisheries, pollination, pest control, etc. If these 'services' start to break

down in a world where the human population is expanding, international relations could easily degenerate into resource wars between countries possessing nuclear weapons. A radioactive world with air quality, soil fertility, fisheries, pollinators and pest predators plummeting, and with high levels of disease and toxicity could be fatal for us – especially if infrastructure and health systems begin to break down too. In that scenario, we could well become extinct.

what can I do?

Are you sick of claims that we can make our current way of life sustainable by not leaving electrical equipment on standby, but that it's good to buy more electrical equipment? We can't. We have to change the way we live. It's not about sacrifices or hair-shirt living. It's about making better lives and a better world. You can join a conservation organisation that campaigns to protect habitats and species - but that's not enough if your lifestyle is contributing to extinctions. You can check your eco-footprint, downshift, and get into more sustainable ways of living. You can network with like-minded people, and influence others by example. And don't be fooled. Those who call for constant growth or 'development' (in the West at least) *do not understand ecology* and must be ignored if we are to survive, let alone prosper. Economics must stop trumping ecology. We can survive an economic crash, but we may not survive an ecological crash. Individual change is only part of what's needed of course, but without it, social, political and economic change can't happen. We need to limit our activities, in terms of our sheer numbers, and what we're asking from ecology. You can debate these points on our forum. If you have additional information, or think we've got things wrong, we'd be glad to hear from you.

resources

- E O Wilson, *the Diversity of Life*, why extinctions are the most dangerous threat to humanity – available from LILI
- wri.org – World Resources Institute
- cbd.int – Convention on Biological Diversity
- zsl.org – Zoological Society of London
- well.com/~davidu/extinction.html – huge list of articles on the current mass extinction



dinosaurs such as this fossilised T-rex became extinct around 65 million years ago, due to an asteroid impact

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