**Extinction: The Facts**

<https://www.bbc.co.uk/iplayer/episode/m000mn4n/extinction-the-facts>

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***00.00 – 08.35 Introduction***

1. What is the abundance of life on Earth known as? (Biodiversity)
2. What is happening to biodiversity today? (Vanishing at rates never seen before in human history)
3. How many plant and animal species are at risk of extinction? (1 million)
4. What have scientists linked our destruction of nature to the emergence of? (COVID19)
5. True or false? All groups in the natural world are in decline. (true)
6. How much have vertebra animals (birds, mammals, amphibians, reptiles etc.) declined by since 1970? (60%)
7. Large mammals have disappeared from how much of the range (area) they are historically found? (3/4)
8. How many species of plants and animals are at risk of extinction? (500 000)
9. How many species of insects are at risk of extinction? (500 000)
10. True or false? Extinction is a natural process, however, the rate of extinction has rapidly increased.
11. According to fossil records, over how many years did rates of extinction usually occur? (millions)
12. Since 1500 how many species of plants have become extinct? (570)
13. Since 1500 how many species of animals have become extinct? (700)
14. How much faster is the rate of extinction compared to the natural evolutionary rate? (100 times faster)
15. From the graph showing rates of extinction how would you describe the rate of extinction from 1900. (exponential)
16. How many northern white rhinos are left on the planet? (2)
17. Why are northern white rhinos set to become extinct? (there are only two females left so there is no chance of reproduction, habit loss and hunting)

***08.35 - 13.20 Consequences of losing biodiversity***

1. True or false? All biodiversity is interlocked on a global scale. (true)
2. The security of two resources, essential for human life, are under threat due to the loss of biodiversity. Identify them. (water and food)
3. What proportion of insects are under threat of extinction? (at least 10%)
4. Why are insects so important to life on earth? (form part of the food chain for hundreds of thousands of other species and important for pollination).
5. What proportion of the world’s food crops rely on insects for pollination? (3/4)
6. What proportion of the world’s surface has been degraded and has low levels of soil biodiversity? (30%)
7. Why is biodiversity important for soil? (Break down organic matter for plant growth)
8. What has been the impact of soil degradation and climate change? (Food production in some parts of the world is going down).
9. Who is most likely to be affected by soil degradation and climate change? (poor people in the developing world)
10. What proportion of the plant species, that have been assessed, are at risk of extinction? (1/4 or 25%)
11. Why are plants important to life on Earth? (Oxygen production, CO2 absorption, clean water, regulation of water flow across landscapes, interception and stabilise soil.)
12. Identify a hazard caused by deforestation. (landslide)
13. Identify the ecosystem being lost in the UK that once helped protect us from flooding. (wetlands)

* 1. ***- 41.32 How are we destroying the ecosystems we depend on?***

1. Identify the multi-billion dollar global industry that is having a negative impact on biodiversity. (illegal wildlife trade)
2. How many rhinos are lost on the African continent due to poaching each day? (2/3 rhinos)
3. Identify one factor driving the increase in the illegal wildlife trade? (Increased income in China/Vietnam, status symbol, medicinal purposes, increased internet access)
4. What is the most trafficked animal in the world? (Pangolins)
5. What are the benefits of pangolins to an ecosystem? (Pest control)
6. Why are pangolins highly sought? (For their scales. Some people in Asia believe they have medicinal properties.)
7. In 2019 how many pangolins were killed for the scale trade? (175,000)
8. Of the 8 species of pangolins, how many are threatened with extinction? (8)
9. What has happened to the scale of global fishing over the last 40 years? (Dramatically increased, at any one time 100 000 trawlers could be operating in our seas)
10. What is the impact of removing an increased number of adult fish from the sea? (Fewer eggs and fry, so the population cannot recover)
11. Identify a strategy what allows fish stocks to recover. (Reducing fishing in an area)
12. What issues are there with fish quotas being set in some parts of the world? (Not being implemented or monitored)
13. What proportion of trawler caught fish is left in British waters compared to the turn of the 20th Century? (5%)
14. Why is there a growing demand for natures resources? (Rapid global population growth and growth in consumption level)
15. Where is population growth the highest? (Developing world)
16. In which area of the world is the growth in consumption levels putting the greatest strain on natural resources? (Developed economies)
17. How much more does the average person in the UK consume compared to India? (Four times more)
18. How much more does the average person in the USA consume compared to India? (Seven times more)
19. True or false? Pollution is a major cause of biodiversity loss. (true)
20. How are developed nations moving their footprint of destroying nature to another country? (Manufacturing mainly occurs in other countries, often developing, where pollution laws are less strict or not implemented, if they exist).
21. What are PCBs? (Polychlorinated biphenyls)
22. Where are PCBs used? (Electrical industry)
23. Why were they banned in the 1980s? (Toxic effect on life, affect immune system and cause reproductive impairment)
24. How can PCBs enter the environment? (Leaching from landfill sites into rivers then to the sea)
25. Why do marine animals have a higher concentration of PCBs than smaller ones? (Larger mammals consume smaller marine life (containing PCBs) so concentrations of PCBs increase.)
26. What has been the impact of PCBs on the last remaining pod of in-shore killer whales off the coast of north-west Scotland? (The pod has not reproduced (non-functional ovaries), and their numbers have declined.)
27. True or false? Climate change is causing biodiversity loss. (True)
28. According to which agreement should all countries try to limit climate change warming to no more than 2°C? (Paris Agreement)
29. What do calculations suggest temperatures will increase by? (3-4°C)
30. What is the escalator to extinction? (Animals moving to higher altitudes as temperatures increase until they can climb no more.)
31. What will be the greatest threat to biodiversity in the future? (Climate change)
32. What is currently the greatest threat to biodiversity? (The destruction of habitats.)
33. What % of wetlands have been lost around the world? (Almost 90%)
34. What % of the Earth’s surface, that is not covered by ice, has been converted by humans? (75%)
35. True or false? Mono-culture agriculture reduces biodiversity. (True)
36. How much forest is estimated to be cleared every year? (3.8 million hectares of forest)
37. Identify the main causes of forest clearance? (Demand from more developed countries)
38. Demand for which products are driving rainforest forest clearance? (Soy, palm oil, cocoa, coffee and beef – greatest cause)
39. What proportion of the total mass of animals on Earth are livestock, humans and wild animals? (60%, 36% and 4%)
40. Which country has one of the largest cattle herds in the world? (Brazil)
41. What product does the UK buy that is contributing to rainforest deforestation in Brazil? (Soy)
42. What is the majority of soy used to produce? (Cattle feed)
43. What is the Cerrado in Brazil? (Scrub grassland and forest)
44. Why is the Cerrado important? (It has many unique species such as giant ant eaters)
45. How much of the Cerrado has been transformed to agricultural landscape? (50%)
46. Where is most of the soy grown in the Cerrado exported to? (China)
47. How much does roadkill reduce the population growth rate of giant ant eaters? (half)
48. How are humans contributing to the rise of pandemics? (Human impact on the natural environment drives emerging diseases including rearing wild animals and land use change)
49. What proportion of emerging diseases have originated from the process of land use change? (31%)
50. Why are smaller species likely to increase the risk of spreading diseases when land use change happens? (When humans destroy habitats large predators and herbivores disappear first which means smaller mammals, most likely to carry viruses, thrive).
51. Where is COVID19 said to be likely to have originated? (Bats in Hunan province where natural ecosystems have been opened up by roads etc.)
52. How many new emerging diseases is it estimated there will be each year? (5)

***41.30 – 44.55 How did it come to this?***

1. When was the UN Earth Summit? (1992)
2. What was done to protect the environment at the UN Earth Summit? (A convention was signed to protect biodiversity)
3. In 2010 how many targets were agreed to protect biodiversity by world leaders in Japan? (20)
4. How many of these are likely to be met? (0)
5. What are the main challenges in implementing agreements to protect biodiversity? (Lack of global environmental laws and many in the private sector make profit from exploiting the natural world.)

***44.55 – 51.42 What can we do to slow the decline in biodiversity?***

1. Identify two ways to overcome the current financial crisis that also has a positive impact on the environment. (Investments in restoring degraded land, planting trees, retro fitting properties so they are more efficient, investment in clean energy)
2. In the future, what needs to be a priority to improve biodiversity? (Change damage from producing and consuming, charge for extracting from nature produce affordable food without expanding further into ecosystems, reduce food waste, reduce chemicals in farming, reduce soil degradation, introduce environmental rules)
3. Identify one global success in making a positive change in the environment. (Banning CFCs).
4. What changes can individual make to improve biodiversity? (Food consumption e.g. meat and dairy, personal consumption, educating young people).

**51.42 – 56.69 Nature can bounce back – Poppy and the mountain gorillas**

1. Why were mountain gorillas under threat in the Virunga mountains in East Africa during the 1970s? (their habitat was being converted from forest to agricultural fields and poaching).
2. Why did agriculture expand from the 1970s? (It was the only way for people to survive as it was one of the poorest and most densely regions of Rwanda.)
3. What has been done to protect mountain gorillas in the Virunga mountains in East Africa? (Governments, conservation organisation and locals worked together, rangers were employed to check the habitat of the gorillas, a tourism scheme has been set up and local communities benefit from this.
4. Why is this a good example of sustainable development? (Local people are involved and benefit and the environment and biodiversity is protected for future generations).
5. What has been the impact of the above? (The conversion of habitat for agriculture has ceased. The population of gorillas has recovered and the numbers have reached and exceeded 1000) .