The Balance Of Nature

In "You're One in Seven Billion," we learned about how populations grow and that there are limits to how large a population can become, since we all need food, water, shelter and energy sources to survive

It's important to remember that the Earth is a **finite system**. There will never be more water on Earth and in the atmosphere than there was a million years ago, or is now, so we must not pollute it. There is only so much land on which to grow food, trees to build houses and fibers to make clothes, so we must take care of it. There are only so many minerals and fuel sources in the ground, so once we use them up, that's it.

Protecting Biodiversity

Our planet is home to so many different kinds of life forms and we depend on this diversity in nature for survival. The many different plants and trees provide us with food, oxygen to breath, wood, paper, shade, medicine and more. Animals eat plants or smaller animals and some become food for us. While there are some animals we eat, most we depend on without even knowing it. What would happen, for instance, if there were no bees to pollinate the flowers? Or spiders to eat smaller bugs? Or worms to **decompose** plant life and make the soil rich for growing things? All of this **biodiversity** makes Earth the wonderful planet it is.

This is why it is important for the size of the human population and the resources that we use to be in balance with the Earth's other creatures and with our natural resources. As the human population grows, people need more land for building houses, factories, roads, schools and shops and for disposing of waste. They also need to produce more food to feed more people. But the Earth is finite. Whatever land is being turned into human habitat is taken away from animal and plant habitat. The result is smaller populations of fewer species. Already, scientists estimate that 20 plant and animal species become **extinct** every week!

Preserving Precious Land

Expanding human habitat does more than simply rob other species of homes. It can affect our planet's ecosystems and atmosphere in countless ways. For instance, each year, we lose 23 million acres of forests (about the size of Indiana) to create more farmland and obtain wood for fuel and other uses. The loss of these forests affects the entire Earth.

We all depend on forests, especially the tropical rainforests of Asia, Africa and Latin America, to control the world's weather patterns. Forests absorb the excess carbon dioxide (CO_2) released from burning fuels in our cars, homes and businesses. Carbon dioxide in the air traps more of the sun's heat, not letting it escape back into space. The trapped heat keeps the Earth warm like a greenhouse. **Climatologists** say that people's increased use of **fossil fuels** is causing the average temperature of the world's atmosphere to rise. This "global warming" can cause serious climate changes, such as droughts in farm areas and flooding in low-lying and coastal areas.

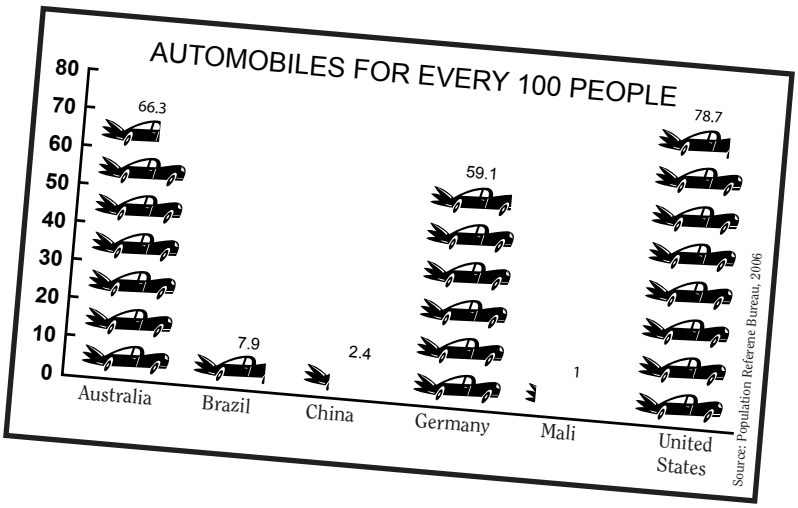
When trees absorb CO_2, they produce more oxygen for us to breathe. What's more, tree cover prevents rich soil from eroding. Wherever trees are removed, the soil loses the shelter of branches, leaves and roots that protect it from being blown and washed away. Topsoil is threatened in other ways as well. To feed our taste for meat, growing numbers of people have expanded their livestock herds. These billions of animals graze the world's grasslands to dust without giving the grass a chance to grow again. Croplands, too, have been destroyed as the rich topsoil **erodes** after being overworked and misused.

Mining operations can also damage precious land. Our Earth is rich with minerals we rely on to produce so many products we use every day, from the building materials of our homes, cars and appliances to our food containers, tires, cleansers and art supplies. Some minerals are very common (like salt) and others are much rarer (like gold). As the human population grows, the demand for minerals grows as well. Minerals are **nonrenewable resources**. Once they are used up, they can never be replaced. Extracting minerals from the ground often destroys needed topsoil.

Conserving Energy

The way we live also affects the balance of nature. Every time we use energy by driving in a car or turning on lights, TV or other electrical appliances, we are using fuel. This might come from oil, coal or nat-

ural gas, which are all in limited supply underneath the Earth's surface. In one year, the average American uses energy equal to 59 barrels of oil, almost 10 times as much as the average Chinese. This is not surprising considering that Americans enjoy a high standard of living with many energy-powered conveniences, such as air conditioners, hot water, stereos and computers. There is more than one car for every two people in the United States compared to less than one car for 63 people in China!

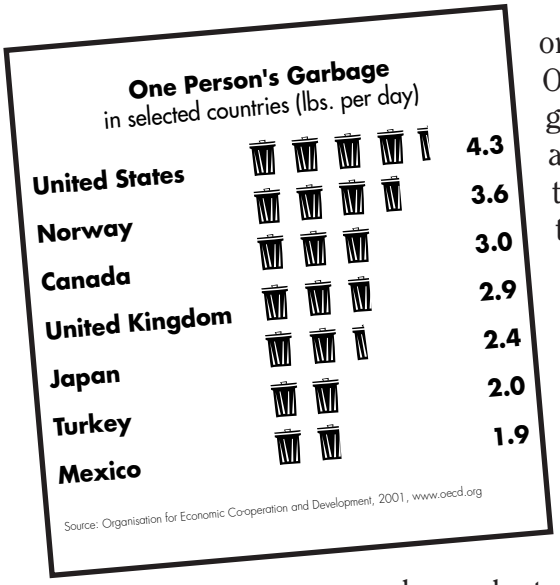


Burning these fuels has a side effect — they create air and water pollution. There are cleaner ways of producing energy for homes and businesses, such as energy from the sun (solar), water (hydro) and wind. These forms of energy are becoming more efficient and could be common ways to produce energy power in the future. In the meantime, conserving energy by turning off appliances when not in use and walking, biking or carpooling can go a long way to reduce fossil fuel use.

Buying Less, Pitching Less

The way we consume items also affects our environment. The more we buy, the more there is to throw away, especially if an item has lots of packaging. On average, each person in the United States creates over four pounds of trash daily, more than people from any other country.

Most people don't give their trash another thought after they throw it away. But where is "away"? Garbage is usually put in landfills (big holes in the ground), or burned (creating more air pollution), or sometimes dumped into the oceans (making it nasty and hazardous for the fish). Some of our trash, such as food scraps, decomposes quickly in the ground. Some of our trash, however, includes plastic and styrofoam containers, which do not break down into the soil and can last thousands of years.



The less we buy and the more we are able to reuse items or recycle them into other products, the better for the planet. Otherwise, we're stuck with more and more garbage that won't go away as the number of people increases. Already our landfills are filling up and we are not able to build new ones fast enough to dispose of all our waste. Besides, no one really wants new trash dumps built close to his/her neighborhood.

Sustaining a Healthy Planet

It may seem like we still have plenty of **natural resources**, open land and species on the planet today. What about in the years to come? By having a balance of people and natural resources and protecting other species, we can work to **sustain** a healthy planet and good quality of life for all. This means only using what we need, so that we can leave plenty for our children and their children. Trees that are cut down must be replaced. Waterways should be kept free of pollution. Energy resources should be conserved, while we develop cleaner and more efficient energy sources for the future. And we must be aware that if the human population continues to grow rapidly, we will tip the balance and not be able to sustain our life support systems.

Reading Comprehension and Analysis:

1. Name two ways that human population growth can affect the habitat of other species.

2. What are two practices that can destroy the topsoil needed to grow crops?

3. Do you think that the American lifestyle puts a greater strain on the Earth's environment than lifestyles in developing countries? Why or why not?

Glossary:

biodiversity: the variety of species in nature and the genetic diversity within each species.

climatologists: scientists who study climates.

decompose: break down into smaller pieces.

erosion: the wearing away by water or wind.

extinct: no longer existing. When a plant or animal species dies off, we say it is extinct.

finite system: a system of resources in limited supply. The resources can be reused or recycled (like water), but you can never make more. All matter is created from other matter already in the system.

fossil fuels: nonrenewable energy sources found beneath the surface of the Earth (oil, natural gas and coal).

natural resources: raw materials supplied by nature.

nonrenewable resources: a resource from the Earth in a limited supply that cannot be regenerated, such as a mineral.

sustain: to prolong or maintain.