**Threats to Biodiversity** Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| *Pollution* | List 3 examples of pollution: What can pollution disrupt? Examples: What did acid precipitation do? What did DDT do?  |
| *Deforestation* | *Causes:* What are forests cut down? How does deforestation occur?*Effects: Explain 3 ways deforestation can affect our planet* |
| *Invasive Species* | After reading the article, give YOUR best explanation of an invasive species: Explain one example of an invasive species given in the article and WHY it was harmful:  |
| *Over-Hunting* | What has over-hunting caused? Why are animals over-hunted? Why are rhino populations so low? Why do you think sport and recreational hunting does not harm populations?  |

# 10 Surprising Threats to Biodiversity

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By Diana Bocco

Biodiversity is the connection among all living things on the planet. At best, scientists have identified only a small percentage of the species on the planet -- less than 1.5 million. However, experts estimate that there are anywhere from two to 100 million species on the planet, and we're losing species at the rate of up to 0.1 percent (of all species) per year. This is 10,000 times the speed at which natural selection would eliminate species without human intervention [source: [Equator Initiative](http://www.equatorinitiative.org/index.php?option=com_content&view=article&id=565&Itemid=633&lang=en)].

As species disappear, the changes in the environment become deeper and more serious. Biodiversity is affected. The disappearance of a single species changes the dynamics of the surroundings for all other species, and these changes can also affect humanity at a much deeper level. Many of the synthetic drugs we use today are of natural origin, and if species disappear, so can possible cures.

So what's threatening biodiversity? A lot of things -- and some of them might just surprise you.

Let's take a look at 10 of the biggest threats to Earth's biodiversity.

Some of those insects in your garden, like bees, have important jobs to do -- killing them can damage the ecosystem.

**10: Building Better Roads**

New roads and urbanization mean the loss of habitats for many species. As roads are built, animals are displaced. Those who are not scared away or killed during construction run the risk of being injured by traffic. More roads also mean more noise, and noise pollution can drive animals away, forcing them to set up homes in new areas just to avoid crossing the road. As an animal population grows or diminishes in one specific area, other species, plant life and even the soil are affected.

Human intrusion takes many forms. Even where roads are not being built, people are laying down phone and electric lines, as well as building TV and telecommunication towers. Even building a new golf course can affect biodiversity, unless it's planned well and located in a place where it's not invading wildlife space.

**9: Having a Baby**

Between 1950 and 2008, the world's population more than doubled, growing from 3 billion to 6.9 billion [source: [Ontario Ministry of Natural Resources](http://www.mnr.gov.on.ca/en/Business/Biodiversity/2ColumnSubPage/STEL02_166814.html)]. According to experts, we're looking at reaching a number close to 9.5 billion people by the year 2050. Even with healthy ecosystems and crops growing at full capacity, Earth can only sustain a limited number of people. As the population grows, so does the carbon footprint that humans leave on the planet. More people mean that more wild land needs to be converted to farming land, more pollution is created and more natural habitats are invaded. As cities grow to accommodate the ever-increasing population, natural spaces get smaller, affecting the animals and plant life in them.

With babies born every minute, does the Earth have more people than it can sustain?

**8: Owning a Car**

Fossil fuel combustion is one of the most serious environmental pollutants in the world. Exhaust emissions are the primary cause of this, but pollution also comes from the evaporation of stored gasoline and other fuels. The less efficient a car is, the worse the problem becomes, because it consumes more gas and produces more emissions. Cars that aren't properly maintained can smoke or produce visible emissions. This smoke is caused by incomplete combustion, which releases toxic chlorofluorocarbons (CFCs) into the air.

And the problems don't stop there. Old tires end up in landfills, where they're often burned, releasing more CFCs. People sometimes dispose of coolants, lubricants and other car products through the sewers, which empty into rivers or other water sources. These chemicals mix in with the water and end up in the fatty tissue of fish, then traveling on up the food chain.

**7: Buying an Exotic Pet**

Overhunting animals for fun can affect not only the animals themselves, but also their habitats. Exotic animals such as rhinos are hunted for their purported medicinal benefits. Elephants are hunted for their ivory. Crocodiles are hunted for their skin, which is turned into expensive leather products.

But even owning an exotic pet can seriously affect the environment, not only because it takes animals out of their natural ecosystems, but also because it encourages humans to go into a particular area frequently to catch those animals. This human interaction can affect the soil, cause animals to migrate and reduce wildlife populations. And then there's the risk of introducing new species into the ecosystem. Unfortunately, many pet owners are not aware of how difficult it is to care for an exotic animal. Once the animal outgrows its cuteness or becomes hard to handle, its owners might release it into the wild. According to the Florida Fish and Wildlife Conservation Commission, more than 250 new species have appeared in Florida within the last 200 years [source: [Iguana Invasion](http://www.iguanainvasion.com/other_exotics.html)]. Of those, most started as single pets that were released into the wild. This includes the red-eared slider turtle, the spectacled caiman, cane toads, and non-native fish and snails. These species either prey on local animals, reducing their populations, or cause changes in the environment and the wildlife in the area.

**6: Introducing Non-native Species**

One of the easiest examples of how a non-native species can forever change the landscape of an environment is in Australia. Until 1859, only a few captive rabbits existed in Australia. Then, 12 wild rabbits were imported and released onto the land. In less than 50 years, the population grew to become a major plague. The rabbits ate the local vegetation, causing soil erosion and leaving little food available for other species.

The same thing happened when Australia introduced cane toads. They were brought in to eat pest beetles, but they ended up eating other species as well. The toads also produce a toxic substance to protect themselves against predators. As a result, a large number of animals that don't have resistance to the venom because they have never encountered the toad before have been poisoned when trying to eat the toads. The government of Australia has found evidence of anything from freshwater crocodiles to quolls and snakes that have been killed because they tried to eat cane toads. As predators die, other animals will prosper, affecting the environment in the process.

**5: Buying from Large Corporations**

Farming, especially on a large scale, can have serious repercussions on the environment. Fertilizers and other chemicals used to prevent pests or increase soil nutrition can easily wash out and find their way into rivers and streams, where they may be toxic to fish or other animals that drink or live in the water. Large factories are also notorious for dumping waste into local waters, not only causing pollution, but also spreading bacteria. Bacteria, in turn, can cause algae to reproduce faster, robbing the waters of oxygen and killing fish and other aquatic wildlife.

More than twice as many bird species and beneficial insects can be found on small farms compared to large farms; large farms are more likely to use pesticides and other products that might drive animals away and affect the ecosystem.

So what's one solution? Support local, organic farms. Buy from small companies rather than large corporations, or take some time to research the company to ensure it's as green and environmentally conscious as possible.

**It Started a Long Time Ago**

Deforestation is not a new phenomenon. When steamboats were introduced to the Mississippi River in the 19th century, trees started to come down. It was easier and more practical for the crew to cut down trees on the riverbank than to bring along wood to fuel the engines. By the late 19th century, a number of small towns in Illinois County flooded as a result of deforestation along major river banks. Kaskashia and St. Philippe were both abandoned as a result.

**4: Not Taking Care of Your Health**

The less you take care of your health, the more you have to rely on medication to help you get better. More than half of the drugs we use today are of natural origin, and this is without counting the large percentage of the population around the world that relies on herbs and natural medicine to treat illnesses [source: [Equator Initiative](http://www.equatorinitiative.org/index.php?option=com_content&view=article&id=565&Itemid=633&lang=en)]. In a desperate attempt to treat diseases, scientists scout the world and natural environments that would otherwise be left intact.

However, the main effect of drugs on the environment is through people -- literally. When you take medicine, most of it is absorbed by your body, but some of it passes through and is excreted through urine or feces. This residue ends up in the sewer system and eventually in our water, where it's ingested by fish and wildlife. While moving water might help dilute the effects of a drug, residue that ends up in lakes or small bodies of water can have a very toxic effect on the environment.

**3: Eating Meat**

Deforestation in South America is mainly due to the increasing need for open land to grow livestock. In fact, 60 percent of the deforestation happening in Brazil is due to cattle ranches [source: [Butler](http://www.mongabay.com/brazil.html)]. Many of the large meat producers and exporters of the world obtain their meat from animals raised in South America, simply because it's cheaper and easier to raise animals there. As the size of the Amazon dwindles, thousands of species disappear with it.

Livestock grown in the United States and Europe is fed either through grazing or with grains, and both can cause problems if not handled properly. For example, letting the animals feed on a small area can cause overgrazing, which can affect the soil and other species that feed or live on it. Feeding grain to livestock means larger spaces are needed to grow crops, taking over open land that once belonged to wildlife. In the United States alone, 80 percent of the corn grown goes to feed livestock [source: [United States Environmental Protection Agency](http://www.epa.gov/agriculture/ag101/cropmajor.html)]. Reducing meat consumption is probably one of the easiest ways to protect the environment and preserve biodiversity.

Skipping the steak sometimes can help protect biodiversity.

**2: Not Recycling**

Only 28 percent of the waste produced in a household is ever recycled or composted: Most ends up in landfills, and a small percentage is burned at combustion facilities [source: [United States Environmental Protection Agency](http://www.epa.gov/reg3wcmd/solidwastesummary.htm)]. As trash rots, it produces a large amount of gases, which make their way into the air or infiltrate nearby bodies of water. Toxic things like batteries and chemical products are especially damaging, but rubber, plastic and other common household items are also a problem. One of the gases produced by rotting garbage is methane, which can be explosive if we don't manage it properly and prevent it from building up in enclosed containers or facilities.

When it comes to paper, the statistics are even more startling. To produce virgin paper fiber, we need trees. Today, most of the lumber used in paper production comes from managed forests, which have been planted specifically for this purpose. However, these forests tend to be very uniform, usually consisting of a single type of tree and little other vegetation growing nearby. Lack of diversity affects the interaction of species and can damage the ecosystem. Making paper from scratch also requires up to 70 percent more energy and 790 more gallons of water than it would require to recycle the same amount of paper [source: [Waste Online](http://dl.dropbox.com/u/21130258/resources/InformationSheets/paper.htm)].

**1: Killing Insects**

Pest insects can ruin anything from a small garden to large farm crops. Insecticides, pesticides and other chemical means of control can help, but there's a price to be paid for their use. For starters, many products that kill pest insects will also kill beneficial insects, including bees, ladybugs and worms. Unless you take the time to identify the pest insect properly and research a way to kill it, you might end up causing major damage to the ecosystem.

To learn more about ecosystems and the environment, check out the links on the next page.

**The Great Bee Mystery**

Habitat destruction, climate change and the use of pesticides have had a great impact on the bee population. Since 2006, honey bees have been in steady and rapid decline in the United States. During the winter of 2009-2010, beekeepers reportedly lost an average of 42 percent of their colonies [source: [VanEngelsdorp](http://ento.psu.edu/publications/vanenegelsdorp%20et%20al%202011.pdf)]. While this is still a new phenomenon, the consequences can be long-lasting. Honey bees are one of the key insects needed for pollination, and their decline can have a big impact on the environment. Bees pollinate not only flowers, but also crops and forage greenery such as clover, one of the main grazing plants for livestock.

*Comprehension Questions:* Answer the following comprehension questions based on the “10 Surprising Threats to Biodiversity.”

1. How many species do experts estimate are on the planet?
2. How much faster are we losing species than what would be natural?
3. What happens to the dynamics of the surroundings of all species when species disappear?
4. Building Better Roads: How do better roads affect biodiversity?
5. Having a Baby: What does more people mean for the environment?
6. Owning a Car: What 2 ways can CFCs get into the air?
7. Buying an Exotic Pet: According to the Florida Fish and Wildlife Commission, how many species have been released in Florida in the last 200 years? How does this affect the ecosystem?
8. Introducing Non-native Species: How were other animals affected by cane toads in Australia?
9. Buying From Large Corporations: Why are small farms “better” to buy from than larger farms?
10. Not Taking Care of Your Health: Why is it better to prevent health problems, rather than using lots of medications?
11. Eating Meat: What is happening to much of rainforest land?
12. Not Recycling: What is wrong with how we create paper?
13. Killing Insects: If we keep losing bee populations, what will happen to livestock?