WHY IS BIODIVERSITY IMPORTANT?

Think about how many species exist. Most likely well over 5 million. Now think about how much information about those species we do not yet understand. We do not know what we can learn from them.

Why Is Biodiversity Important?

Human beings benefit in many ways from **biodiversity**. Biodiversity has direct economic benefits. It also provides services to entire ecosystems.

Economic Benefits of Biodiversity

The diversity of species provides humans with a wide range of economic benefits:

- Wild plants and animals maintain a valuable pool of **genetic variation**. This is important because domestic species are genetically uniform. This puts them at great risk of dying out due to disease.
- Other organisms provide humans with many different products. Timber, fibers, adhesives, dyes, and rubber are just a few.
- Certain species may warn us of toxins in the environment. When the peregrine falcon nearly went extinct, for example, it warned us of the dangers of DDT.
- More than half of the most important prescription drugs come from wild species. Only a fraction of species has yet been studied for their medical potential.
- Other living things provide inspiration for engineering and technology. For example, the car design in figure below was based on a fish.

The rosy periwinkle is an invaluable source of two important cancer-fighting drugs.

The yellow box fish provided a design model for the car shown here. The fish is the result of millions of years of natural selection for two traits that are also important in cars: efficient aerodynamics and maximum interior space.

From flowers to fish, biodiversity benefits humans in many ways.

Ecosystem Services of Biodiversity

Biodiversity generally increases the productivity and stability of **ecosystems**. It helps ensure that at least some species will survive environmental change.

It also provides many other ecosystem services. For example:

- Plants and algae maintain the atmosphere. During photosynthesis, they add oxygen and remove carbon dioxide.
- Plants help prevent soil erosion. They also improve soil quality when they decompose.
- Microorganisms purify water in rivers and lakes. They also return nutrients to the soil.
- Bacteria fix nitrogen and make it available to plants. Other bacteria recycle the nitrogen from organic wastes and remains of dead organisms.
- Insects and birds pollinate flowering plants, including crop plants.
- Natural predators control insect pests. They reduce the need for expensive pesticides, which may harm people and other living things.

(from www.ck12.org/biology)